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ABSTRACT

One of 15 core modules in a 22-module series designed to train vocational education curriculum specialists (VECS), this guide is intended for use by both instructor and student in a variety of education environments, including independent study, team teaching, seminars, and workshops, as well as in more conventional classroom settings. The guide has five major sections. Part I, Organization and Administration, contains an overview and rationale, educational goals and performance objectives, recommended learning materials, and suggested reference materials. Part II, Content and Study Activities, contains the content outline arranged by goals. Study activities for each goal and its corresponding objectives follow each section of the content outline. Content focus is on a pre-planning process for vocational education programs, preliminary investigation and proposals for initiating a new or improved vocational education program, and appropriate curriculum approval procedures. Part III, Group and Classroom Activities, suggests classroom or group activities and discussions keyed to specific content in the outline and to specific materials in the list of references. Part IV, Student Self-Check, contains questions directly related to the goals and objectives of the module, which may be used as a pretest or posttest. Part V, Appendix, contains suggested responses to the study activities from part II and responses to the student self-checks. (HD)

VOCATIONAL EDUCATION CURRICULUM SPECIALIST

VECS

Module 5:

Laying the Groundwork for Vocational Education Curriculum Design

STUDY GUIDE

(TEACHING/LEARNING MODULE)

Developed and disseminated pursuant to Contract No. OEC-0-74-9286 from the U. S. Office of Education under Part I - Curriculum Development in Vocational and Technical Education, Vocational Education Amendments of 1968, Public Law 90-576

by

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-Study Guide-

Module 5

LAYING THE GROUNDWORK FOR VOCATIONAL EDUCATION CURRICULUM DESIGN

This document is one of a series of teaching/learning modules designed to train Vocational Education Curriculum Specialists. The titles of all individually available documents in this series appear below:

INTRODUCTORY MODULES

1. The Scope of Vocational Education
2. Roles of Vocational Educators in Curriculum Management
3. Current Trends in Vocational Education
4. Organization of Vocational Education
5. Legislative Mandates for Vocational Education
6. The Preparation of Vocational Educators

CORE MODULES

1. Important Differences Among Learners
2. Learning Processes and Outcomes
3. Applying Knowledge of Learning Processes and Outcomes to Instruction
4. Assessing Manpower Needs and Supply in Vocational Education
5. Laying the Groundwork for Vocational Education Curriculum Design
6. Selecting Instructional Strategies for Vocational Education
7. Derivation and Specification of Instructional Objectives
8. Development of Instructional Materials
9. Testing Instructional Objectives
10. Fiscal Management of Vocational Education Programs
11. Introducing and Maintaining Innovation
12. Managing Vocational Education Programs
13. Basic Concepts in Educational Evaluation
14. General Methods and Techniques of Educational Evaluation
15. Procedures for Conducting Evaluations of Vocational Education

SEMINARS AND FIELD EXPERIENCE MODULE

(Seminars in Authority Roles and the Curriculum Specialist in Vocational Education, and Leadership Styles and Functions of the Curriculum Specialist in Vocational Education; field work in Project Design and Administration, Operation of School Programs, Evaluation of School Programs, Educational Research and Development, and State, Regional, and Federal Program Supervision)

INSTALLATION GUIDE

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PREFACE

Who is a vocational education curriculum specialist? The answer to this question is not as simple as it might appear. A vocational education curriculum specialist is likely to work in many different capacities, including, but not limited to: instructor, department chairperson, dean of vocational-technical education, vocational supervisor, principal, state or local director of vocational education, and curriculum coordinator.

The specialist is, perhaps, more identifiable by his/her responsibilities, which include, but are not limited to:

- planning, organizing, actualizing, and controlling the work of an educational team performed to determine and achieve objectives.
- planning, organizing, and evaluating content and learning processes into sequential activities that facilitate the achievement of objectives.
- diagnosing present and projected training needs of business, industry, educational institutions, and the learner.
- knowing, comparing, and analyzing different theories of curriculum development, management, and evaluation and adapting them for use in vocational-technical education.

This teaching/learning module is part of a set of materials representing a comprehensive curriculum development project dealing with the training of vocational education curriculum specialists. The purpose of this two-year project was 1) to design, develop, and evaluate an advanced-level training program, with necessary instructional materials based on identified vocational education curriculum specialist competencies, and 2) to create an installation guide to assist instructors and administrators in the implementation process.

The curriculum presented here is, above all else, designed for flexible installation. These materials are not meant to be used only in the manner of an ordinary textbook. The materials can be used effectively by both instructor and student in a variety of educational environments, including independent study, team teaching, seminars, and workshops, as well as in more conventional classroom settings.

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Principal Investigator and
presently Director,
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ACKNOWLEDGEMENTS

The Vocational Education Curriculum Specialist Project was a comprehensive development and evaluation effort involving the contribution of a large number of people: project staff, curriculum consultants, a national advisory panel, and a number of cooperating colleges and universities. This wide variety of valuable inputs makes it difficult to accurately credit ideas, techniques, suggestions, and contributions to their originators.

The members of the National Advisory Panel, listed below, were most helpful in their advice, suggestions, and criticisms.

Myron Blee	*Florida State Department of Education*
James L. Blue	*RCU Director, Olympia, Washington*
Ralph C. Bohn	*San Jose State University*
Ken Edwards	*International Brotherhood of Electrical Workers*
Mary Ellis	*President, American Vocational Association*
George McCabe	*Program Director, Consortium of California State University and Colleges*
Curtis Henson	*Atlanta Independent School District, Georgia*
Ben Hirst	*Director, Consortium of the States, Atlanta, Georgia*
Joseph Julianelle	*U. S. Department of Labor*
Lee Knack	*Industrial Relations Director, Morrison-Knudsen, Inc.*
Bette LaChapelle	*Wayne State University*
Jerome Moss, Jr.	*University of Minnesota*
Frank Pratzner	*CVE, Ohio State University*
Rita Richey	*Wayne State University*
Bryl R. Shoemaker	*Ohio State Department of Education*
William Stevenson	*Oklahoma State Department of Education*

The project would not have been possible without the cooperation and commitment of the field test institutions listed below.

California State University, Long Beach
California Polytechnic State University, San Luis Obispo
Consortium of California State University and Colleges
- California State University, Sacramento
- California State University, San Diego
- California State University, San Francisco
- California State University, San Jose
- California State University, Los Angeles

Iowa State University
University of California Los Angeles
University of Northern Colorado

Overall responsibility for the direction and quality of the project rested with James A. Dunn, Principal Investigator. Project management, supervision, and coordination were under the direction of John E. Bowers, Project Director.

TABLE OF CONTENTS

Part I:

Organization and Administration

PART I
ORGANIZATION AND ADMINISTRATION

Guidelines

This study guide has five major sections. Each section contains useful information, suggestions, and/or activities that assist in the achievement of the competencies of a Vocational Education Curriculum Specialist. Each major section is briefly described below.

PART I: ORGANIZATION AND ADMINISTRATION

PART I contains an Overview and Rationale, Educational Goals and Performance Objectives, Recommended Learning Materials, and Suggested Reference Materials. This section will help the user answer the following questions:

- How is the module organized?
- What is the educational purpose of the module?
- What specifically should the user learn from this module?
- What are the specific competencies emphasized in this module?
- What learning materials are necessary?
- What related reference materials would be helpful?

PART II: CONTENT AND STUDY ACTIVITIES

Part II contains the content outline arranged by goals. The outline is a synthesis of information from many sources related to the major topics (goals and objectives) of the module. Study activities for each goal and its corresponding objectives follow each section of the content outline, allowing students to complete the exercises related to Goal 1 before going on to Goal 2.

PART III: GROUP AND CLASSROOM ACTIVITIES

The "Activities-Resources" column in the content outline contains references to classroom or group activities and discussion questions related to specific content in the outline. These activities and discussion questions

are located in PART III and are for optional use of either the instructor or the student. Both the classroom activities and discussion questions are accompanied by suggested responses for use as helpful examples only--they do not represent conclusive answers to the problems and issues addressed. Also contained in the "Activities-Resources" column are the reference numbers of the resources used to develop the content outline. These reference numbers correspond to the numbers of the Suggested Reference Materials in PART I.

PART IV: STUDENT SELF-CHECK

PART IV contains questions directly related to the goals and objectives of the module. The self-check may be used as a pre-test or as a post-test, or as a periodic self-check for students in determining their own progress throughout the module.

PART V: APPENDICES

Appendix A contains responses to the Study Activities from PART II, and Appendix B contains responses to the Student Self-Check. The responses provide immediate feedback to the user and allow the module to be used more effectively for individualized study. They have been included in the last part of the module as appendices to facilitate their removal should the user wish to use them at a later time rather than concurrently with the rest of the module.

Approximately 30 hours of out-of-class study will be necessary to complete this module.

Overview and Rationale

One of the more practical and necessary skills of the vocational education curriculum specialist is the planning of new or improved programs. Translating ideas for new vocational programs into a well-organized, articulate, and comprehensive proposal demands special organizational and technical skills. The ultimate purpose of this module is to provide the student with experiences that will enhance his ability to plan, write, and present an

occupational program proposal. The occupational program proposal is one of the most effective ways of initiating new or improved curriculum within a school, district, or region.

The first goal of Module 5 is concerned with explaining and providing practice in the technical skills involved in laying the foundation for subsequent vocational curriculum development. This foundation work is referred to as "the pre-planning process" in this module. In order to be an effective pre-planner, the curriculum specialist must know how to review and evaluate current vocational programs, estimate needs, identify alternatives for meeting needs, and make recommendations for future program development.

The second goal of the module explains and provides practice in conducting a preliminary program investigation. The preliminary investigation is the most important step in the pre-planning process. The skills emphasized in the first goal of the module are significantly important in conducting the preliminary investigation, which includes research into current program status, funding, personnel employment outlook, and other program considerations pertaining to work experience, health and safety, and industry and community involvement. This part of the module guides the student through an organized investigation and culminates with the activity of transferring the collected information into proposal form.

The last goal of the module features suggestions and simulated group activities that will help the student discuss, analyze, and present program proposals through a curriculum approval procedure.

In summary, goal one is technique and skill building; goal two is the practical application of acquired skills and techniques in conducting a preliminary investigation and writing a proposal; and goal three is the culmination of the pre-planning process through involvement of appropriate vocational education personnel and committees.

Module 5 is an extension of Module 4, Assessing Manpower Needs and Supply in Vocational Education. The information and experience the student gained in Module 4 will greatly facilitate the successful completion of this

module. Module 5 also relates to Module 6, Selecting Instructional Strategies for Vocational Education. These three curriculum modules (4, 5, 6) provide the foundation for the more specific course development and instructional management subjects contained in Modules 7, 8, 9, Derivation and Specification of Instructional Objectives, Development of Instructional Materials, and Testing Instructional Objectives.

Goals and Objectives

Upon completion of this module, the student will be able to achieve the following goals and objectives:

GOAL 5.1: EXPLAIN, ANALYZE, AND UTILIZE SKILLS AND TECHNIQUES IN A PRE-PLANNING PROCESS FOR VOCATIONAL EDUCATION PROGRAMS.

- Objective 5.11 Review and evaluate the present status of vocational education programs in light of manpower data.
- Objective 5.12 Estimate present and future vocational education program needs.
- Objective 5.13 Identify alternative solutions for meeting vocational education program needs.
- Objective 5.14 Make recommendations for present and future vocational education program development.

GOAL 5.2: CONDUCT A COMPLETE PRELIMINARY INVESTIGATION RESULTING IN A PROPOSAL FOR INITIATING A NEW OR IMPROVED VOCATIONAL EDUCATION PROGRAM.

- Objective 5.21 Provide basic information for proposing a new occupational program, including a description of the occupation, a rationale for the program, and suggestions of sources for additional information about the occupation.
- Objective 5.22 Describe the employment potential and projection related to a specific occupational program.
- Objective 5.23 Describe the current status of the occupational program in terms of its goals and objectives.
- Objective 5.24 Describe the economic considerations related to the occupational program.
- Objective 5.25 Describe the personnel considerations relevant to program development.

Objective 5.26 Describe the work experience considerations relevant to program development.

Objective 5.27 Describe the health and safety hazards associated with the occupation or with training for the occupation.

Objective 5.28 Describe any pre-planning considerations that relate to unions and/or community attitudes regarding the occupational program.

GOAL 5.3: COMPLETE THE PRE-PLANNING PROCESS FOR VOCATIONAL EDUCATION PROGRAM DEVELOPMENT BY DESCRIBING AN APPROPRIATE CURRICULUM APPROVAL PROCEDURE.

Objective 5.31 Discuss the proposed occupational program with faculty and administrators.

Objective 5.32 Explain how to present an occupational proposal to a district or area curriculum planning committee.

Objective 5.33 Describe how to form and use an interim advisory committee.

Recommended Materials

1. Completed copy of Module 4: Assessing Manpower Needs and Supply in Vocational Education.

2. U.S. Department of Labor. Manpower Report of the President, 1974 edition. Washington, D.C.

3. U.S. Department of Labor. Occupational Outlook Handbook, 1976-77 edition. Washington, D.C.

4. Dictionary of Occupational Titles.

Suggested References

1. Arthur E. Little, Inc. A Policy and System Study of California Vocational Education. Sacramento, California: California State Board of Education, 1970.

2. Burton, William H.; Kimball, Roland B.; and Wing, Richard L. Education for Effective Thinking. New York: Appleton-Century-Crofts, Inc., 1960.

3. California Community Colleges. Resource Guide for Administrators of Occupational Education. Hayward, California: Chabot College, 1973-74.

4. Gillie, Angelo C. Principles of Postsecondary Vocational Education. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

5. Larsen, Milton E. Review and Synthesis of Research: Analysis for Curriculum Development in Vocational Education. Columbus, Ohio: The Ohio State University, ERIC Clearinghouse, 1969.

6. Levitan, Sam A., and Siegel, Irving H., eds. Dimensions of Manpower Policy: Programs and Research. Baltimore, Maryland: The Johns Hopkins Press, 1966.

7. Los Angeles City Schools. "District Vocational Education Policies, Goals, and Objectives," 1974.

8. National Advisory Council on Vocational Education. First Report, July 1969; Second Report, November 1969; Third Report, 1970; Fourth Report, January 1971; Fifth Report, June 1971; Sixth Report, June 1972; Seventh Report, November 1972; Special Report on Indian Education, 1973, Washington, D.C.

9. National School Public Relations Association. Vocational Education: Innovations Revolutionize Career Training. Washington, D.C.: The Association, 1971.

10. U.S. Department of Labor. Manpower Report of the President, 1976 edition. Washington, D.C.

11. U.S. Department of Labor. Occupational Outlook Handbook, 1976-77 edition. Washington, D.C.

12. Walberg, Herbert J., and Sigler, Joanne. "Business Views Education in Chicago." Phi Delta Kappan (May 1975).

13. Wenrich, Ralph C., and Wenrich, J. William. Leadership in Administration of Vocational and Technical Education. Columbus, Ohio: Charles E. Merrill Publishing Co., 1974.

Part II:

Content and Study Activities

PART II
CONTENT AND STUDY ACTIVITIES

Goal 5.1

Content Outline	Activities-Resources
Goal 5.1: Explain, Analyze, and Utilize Skills and Techniques in a Pre-Planning Process for Vocational Education Programs.	
A. Introduction*	* Classroom Activity 1 is an introduction to this section of the module. See PART III.
1. At some point between the original conception of an idea either for curriculum change, development, and/or improvement and the actual development and implementation of the idea is the difficult task of creating a foundation on which the curriculum can be based and directed. Such a task is referred to in this module as pre-planning.	
2. The purpose of the first part of this module is to explain the major activities in the pre-planning process, offer examples of pre-planning in action, and provide practical exercises in analyzing and utilizing information for pre-planning. Most pre-planning activities fall into four main categories:	
a. reviewing and evaluating the present status of vocational education programs and manpower needs--supply and demand;	
b. estimating present and future vocational education program needs;	

c. identifying alternative solutions for meeting needs; and
d. making recommendations for present and future vocational education program development.

B. Reviewing and Evaluating the Present Status of Vocational Education Programs

1. In order to estimate future and even present vocational program needs, the curriculum specialist needs to know the current status of programs in relation to local, regional, and national conditions. One of the most important skills during this phase of pre-planning is that of asking critical questions. Such questions might include the following:
   a. To what extent does the occupational field offer employment opportunities to those who are trained?
   b. To what extent is the occupation sufficiently stable to warrant expenditure of public funds for a training program?
   c. What will be the effects of scientific research and invention on this field of employment?
   d. Will the training benefits of the proposed program be general in nature and serve a large area of the economy?
   e. Are qualified potential trainees available or can they be recruited for the proposed type of training?

f. How many students are currently enrolled in vocational programs compared to other school programs?
g. How many students drop out of high school?
h. How many students drop out of vocational education programs?
i. What programs are available for the disadvantaged and the handicapped?
j. What effect has legislation or funding on vocational programs?
k. What will be the effect of opening a new program?
l. What has in-house research and evaluation yielded?
m. What has been happening to students after they leave school? (1)

(1) A Policy and System Study of California Vocational Education, p. 96.

2. A second important technique in this phase of pre-planning is collecting relevant information in order to answer questions about the status of the program. Information can be gathered from primary sources such as your own surveys, interviews, data research studies, and occupational analyses.*

3. Often, however, curricula are developed on the strength of the analysis, research, and interviews conducted by others. These secondary sources include a wide variety of materials such as state employment service surveys, state and national advisory committee reports, district and state program planning guides, and manpower forecasting data.*

* See Module 4, Manpower Needs and Supply in Vocational Education, for related information.

* See Module 4, Manpower Needs and Supply in Vocational Education, for detailed information on this topic.

4. Synthesis, summarization, and interpretation of the collected data provides the basis for determining the extensions, adjustments, and/or additions to the vocational education program (5).*

(5) Review and Synthesis of Research: Analysis for Curriculum Development in Vocational Education, pp. 11-19.

* See Discussion Question A in Part III.

5. Analyzing information and data from a secondary source requires some critical-thinking skills. Critical thinking is a common approach to problem-solving and is not necessarily unique to vocational education. One useful approach to critical thinking is summarized below:*

   a. Examine the purpose, intent, or viewpoint of the writer or speaker.
   b. Identify major points or chief arguments.
   c. Recognize the documentation or support for the facts given in the information or data.
   d. Identify assumptions (as opposed to facts) that appear in the information.
   e. Recognize whether or not the information, data, or assumptions have been evaluated by the speaker or writer.
   f. Recognize the effects of time on the relevance of the information.
   g. Examine the conclusions and recognize whether or not they have been supported by evidence (2).*

* Students should complete Classroom Activity 2 at this time. See Part III of this guide.

(2) Education for Effective Thinking.

* See Discussion Question B in Part III.

C. Estimating Present and Future Vocational Education Needs*

1. After reviewing and evaluating the status of the current vocational education program and collecting information on local, state, and national manpower needs, the curriculum specialist can begin to estimate future needs more accurately.*
2. On the basis of program review and manpower data collection, one school district in the state of California estimated the following vocational education program needs:
   a. a need to establish and maintain an information file describing population needs;
   b. a need to maintain a file and analyze the data on labor demand in the community;
   c. a need to revise existing courses and programs of vocational instruction and develop curricula for planning new vocational instruction;
   d. a need to strengthen public support for vocational education by keeping the public informed about the importance and merit of vocational education;
   e. a need to attract to vocational education programs students who are capable of profiting from them;*
   f. a need to obtain and maintain multi-media materials, equipment, and trained instructors (7).
   g. a need to increase placement of individuals in occupations related to their skills (7).

* Classroom Activity 3 is important to this section. See Part III of this guide.
* Review Module 4 for techniques used in gathering manpower data.

* See Discussion Question C.

(7) "District Vocational Education Policies, Goals, and Objectives."

3. In the same district plan, estimated needs to meet long-term goals for occupational service areas included:
   a. a need to provide the agricultural industry with appropriate numbers of persons adequately prepared for successful employment in occupations which presently exist and are developing;
   b. a need to assist regular, disadvantaged, and handicapped students to gain an understanding of the economic and social impact of agriculture on society and to develop personal attitudes, character, traits, and leadership abilities that will contribute to their success in agricultural occupations.
   c. in regard to distributive education, a need to identify salable skills for counselors and administrators; a need to individualize instruction for a large percentage of disadvantaged students so they will be able to progress at their own rate; a need to formulate graduation requirements; and a need to develop groups of individual courses into programs in order to meet annual performance objectives (7).
4. Another example of estimating program needs, one that reflects a shift in the manpower mix toward more technical areas, is one dealing with the middle-level workers in society.

a. Middle-level workers are those with vocational abilities in the broad area between skilled labor and the professions. More specifically, middle-level workers are individuals whose occupational functions demand increased cognitive skills as well as manual proficiencies. Preparation must be made, therefore, for both the cognitive and manual aspects of the job through specifically designed programs (4).

(4) Principles of Postsecondary Vocational Education.

b. A review of current programs and a manpower analysis that included a comparison of local and national employment trends and the identification of changes in employment by occupation rather than by specific job resulted in two findings relating to future needs.

c. The first finding was that the number of middle-level workers in manufacturing-related occupations is growing less rapidly.

d. The second finding was that the number of middle-level workers in the social-health, service-related occupations is growing more rapidly. Vocational programs in this area, particularly at the community college level, need to be increased (4).

(4) Principles of Postsecondary Vocational Education.

5. As a result of the career education thrust and increased public interest in vocational-technical programs, some educators have predicted a need for more rapid expansion of employment-related education (13).

(13) Leadership in Administration of Vocational and Technical Education, p. 277.

6. Some vocational leaders have pointed out the need for vocational educators to answer the following questions:
   a. At what level should the specialized aspects of occupational education be provided?
   b. What can be done to change the image of vocational education, especially among students?
   c. What kinds of schools and colleges should offer vocational and technical programs?
   d. How can financial support for vocational and technical education be structured to allow local school authorities sufficient freedom to assess local needs and plan programs to meet these needs (13)?*

* Discuss these questions briefly with students in order to generate ideas. See (13), p. 277-285.

7. Another need that has been projected nationally deals with women and ethnic minorities who have persistently been over-represented in a narrow range of lower status, lower paying occupations. The need to check and discourage occupational segregation in vocational education is immediate and pervasive.*

* Students should complete Classroom Activity 4 in Part III.

8. In summary, the task of estimating needs for vocational education programs requires knowledge about current programs and manpower conditions. This task is actually a first step in a problem-solving approach to decision-making. It is the identification and analysis of a perceived or well-documented problem.*

* Students should complete Classroom Activity 5. Also see Discussion Question D.

D. Identifying Alternatives for Meeting Vocational Education Program Needs

1. A second step in the problem-solving approach to decision-making is searching for alternative solutions to identified problems.
2. The key to creativeness and effectiveness in identifying alternatives is searching for all potential solutions to a need and not just relying on the techniques that have been used before in other circumstances. The following example illustrates this point.
   a: The program director of a machine tool program, in which more students want to participate than the present small facility allows, requests more equipment and more work station space.
   b. All available information indicates that the need for graduates in this field is acute and that student interest is high.
   c. One solution is to build new shop facilities and acquire more equipment.
   d. An alternative to this solution is to contract for the use of a local plant during non-working hours if the plant does not run 24 hours a day (13).
   e. A third alternative is to extend the school day from 7 to 5 and run classes on Saturdays.
3. Educators have a tendency to look for remedies within the traditional school building, classroom, and laboratory setting and by using "tried and true" teaching methods. There is nothing inherently wrong with doing this--the

(13) Leadership in the Administration of Vocational and Technical Education.

results in fact are often positive; however, by investigating further--by reading, doing research, and making inquiries--more options become available for meeting needs and solving problems. Identifying alternatives for program needs is one of the most innovative and creative steps in the pre-planning process. The following are examples of identified alternatives to traditional educational solutions:

a. Hughson Union High School in California is operating a curriculum designed to totally integrate vocational and academic education, using several "learning management systems." In an individually prescribed instruction approach, each student spends 20% of his school time in large-group instruction, 40% in small-group instruction, and 40% in independent study. This approach is nongraded, and students proceed at their own rate. There are no failures; a student simply recycles through a unit if he needs additional work. Results, according to "A Policy and System Study of California Vocational Education," have been spectacular: "The dropout rate has been reduced from 30% ... two dropouts in two years; 13 previous dropouts have returned to school....The continuation school, for those who had gotten out of step in the regular school program, has been closed. Hughson is now taking dropouts from Turlock and Modesto.

The percentage of the student body pursuing post-high school education has increased from about half to about 70%.... Approximately one-third of the terminal high school graduates are presently employed in jobs directly related to their major emphasis in school" (9). (9) Vocational Education: Innovations Revolutionize Career Training, p. 308. Also see (1).

b. Instructional Materials. Department of Defense instructional materials are being made accessible to teachers by a Northwestern Regional Educational Laboratory (NWREL) project. Noting that military services had training programs for which many materials had been developed, NWREL investigated their usefulness for schools. An examination of 42,000 transparencies and 500 films used in Navy training revealed 12,000 suitable items. NWREL is now developing index catalogues in seven vocational areas--auto mechanics, welding, machinist trades, basic electricity, basic electronics, first aid, and marine navigation--for distribution to teachers in NWREL's five-state region. The final phase, with the cooperation of the state departments in Alaska, Idaho, Montana, Oregon, and Washington, is to establish clearinghouses for the catalogued materials (9). (9) Vocational Education: Innovations Revolutionize Career Training.

c. Career Counseling and Guidance. VIEW (Vital Information for Education and Work), originally developed in San Diego, California, is a system that stores information about occupations on microfiche mounted in a data-processing aperture card. With state and regional modifications (including, in some places, changing the acronym base to "Vocational Information for Education and Work"), VIEW is beginning to enjoy widespread usage. In California, the system is one of the major components of 11 career information centers.

The VIEW system involves compiling (and frequently updating) information on different occupations, putting the information into a standard format, which can include both typeset material and illustrations, transferring the material on a particular occupation to a piece of microfilm, and mounting the fiche in a data-processing aperture card. Decks of VIEW cards are then placed, along with a microfiche reader or reader-printer machine, in locations where they are accessible to students and their teachers and counselors (9).

(9) Vocational Education: Innovations Revolutionize Career Training.

Typically, the microfilmed information includes a description of the work involved in the occupation, educational require-

ments and job entry qualifications, employment prospects and advancement opportunities, salary and working conditions, where to get the needed education or training, and sources of additional information. Information keypunched into the card itself usually includes aptitude levels required (based on General Aptitude Test Battery cutoff scores), educational requirements, physical requirements, etc., so that a computer printout of occupational titles worth investigating can be obtained if one knows a specific individual's aptitudes and personal characteristics.

Colorado is using VIEW in every high school in the state. The Colorado Career Information Center has put more than 260 occupations into the VIEW format. South Carolina is developing a statewide system, with writing and administration by the state department's research coordinating unit and microfiche card production centered at Clemson University. Fifteen schools are using South Carolina VIEW, and the goal was to have the service in every junior and senior high school by mid-1972 (9).

(9) Vocational Education: Innovations Revolutionize Career Training.

E. Making Recommendations for Present and Future Vocational Education Program Development

1. This is one of the culminating activities in the pre-planning process. It requires the ability to synthesize all available and pertinent information into realistic and responsible suggestions and directions for program development.*

2. Before reviewing examples of program recommendations, it is timely to consider the focal points around which vocational education program recommendations must be made.

   a. The overall purpose of vocational education is to prepare individuals for a working role.*

   b. Suitable jobs must be available for individuals upon completion of this training (4).

   c. Training and jobs should reflect opportunities for increased earnings and improved employment status. No job or group of jobs should be "dead-end."

   d. Recommendations made in regard to program development should facilitate the achievement of the preceding points.

   e. A well-conceived recommendation should direct program goals and efforts toward a clearly understood purpose. A good recommendation for vocational program development contributes to the stability, security, and interests of both the individual and society.*

* See Discussion Question E.

* See Module 1, The Present Scope of Vocational Education.

(4) Principles of Postsecondary Vocational Education, p. 94.

* See Discussion Question F.

3. Below is an example of a broad program recommendation offered to one western state as the result of an intensive program and manpower review.

The mandate to serve students leads inescapably to an examination of what students require in order to become employable, and to the conclusion that skill training alone, in functional isolation from other elements of education, is no longer (if it ever was) adequate. Employability requires the capacity to communicate, to calculate, to comprehend, and to cope, i.e., to solve problems and adapt to changing work requirements. A vocational education program, as opposed to discrete courses in skill training, must also address students' needs to find out what careers are available to them, which are attractive, and which are realistic in light of their abilities and aspirations. We live in an age dominated by technology, where work is becoming increasingly complex; more and more routine activities are being assigned to machines while the work people do is becoming more focused on activities which machines cannot perform.

Because of the impact of technological change, today's students need skill training that goes beyond narrow job specifications. They need vocational education, organized around families of occupations, that will allow them to develop sufficient breadth and depth to grow

in their work and to make changes if their jobs become obsolete. Programming by occupational clusters is necessary not only to broaden options at a given achievement level, but also to provide options for training at higher levels. For example, a home furnishing cluster could range from furniture repair and upholstering to interior decorating, to furniture design and manufacture.

Curriculum must combine vocational and academic subject matter in activities that are meaningful to students. For example, English, physics, and mathematics can be incorporated as components of a shop project to build, operate, test, and report on a piece of equipment; social studies and statistics can be linked to an understanding of social dynamics and the use of computational equipment in a community research project (1).

4. National-level recommendations for vocational education programs have come from the National Advisory Council in a series of reports.*
   a. The First Report was concerned with the apparent failure of the schools to prepare young people to realize their potential. The Council felt the main reasons for this failure were "attitude, program, and money." It made the following recommendations:

(1) A Policy and System Study of California Vocational Education, p. 45.

* Classroom Activity 6 is related to this section.

(1) We recommend that the federal government immediately exercise its leadership and allocate more of its funds to cure our country of our national sin of intellectual snobbery.

(2) We recommend that substantial federal funds be allocated to support curriculum development, teacher training, and pilot programs in vocational education. No federal investment will bring a higher return. We challenge state and local governments to throw off old habits and take a hard, fresh look at what they are doing in vocational education. We urge the public to watch carefully, and to demand and support the innovations that work (8).

(8) National Advisory Council on Vocational Education Reports.

b. The Second Report of the National Advisory Council recommended fundamental policy changes for the federal government in the areas of funding, educational role, and manpower policies and legislation. The recommendations included:

(1) requiring that communities develop coordinated plans for reducing both the flow of untrained youth and the pool of unemployed adults;

(2) focusing federal support for community colleges and other two-year post-secondary institutions on vocational and technical programs as career preparation;

(3) overhauling the federal administrative organization to permit the federal government to exercise leadership in vocational education as well as in manpower training (8).

c. In their Third Report, the National Advisory Council focused on the ineffectiveness of education to prepare the disadvantaged for full participation in society. The Council recommended that the nation take four basic steps:

(1) Recognize that employment is an integral part of education.

(2) Give priority to programs for the disadvantaged without separating the disadvantaged from the mainstream of education.

(3) Encourage parents and students to participate in the development of vocational programs.

(4) Establish residential schools for those who need them most (8).

(8) National Advisory Council on Vocational Education Reports.

d. The Fourth Report emphasizes what the Council felt to be the major cause of many problems in vocational education--the development of a system of financing vocational education that precludes the creation of imaginative career education programs in the public schools. The Council's position was that many of the complaints so frequently heard about the quality of vocational education courses, facilities, and faculties could be traced

(8) National Advisory Council on Vocational Education Reports.

to a system of funding that so narrowly defined what could be funded as vocational education that it excluded new and often needed forms of career education. The NACVE outlined a new funding and planning technique in its recommendations (8).

(8) National Advisory Council on Vocational Education Reports.

e. In the Fifth Report, the Council examined the forces that were apparently preventing the adoption of some of their previous recommendations. In this report the Council strongly urged that programs in vocational and technical education continue to be legislated and that the Department of Health, Education, and Welfare continue to be held accountable by Congress under the law (8).

f. The Sixth Report made recommendations regarding the improvement of vocational guidance and counseling services (8).

(8) National Advisory Council on Vocational Education Reports.

g. In its Seventh Report the National Advisory Council recognized the importance of vocational student organizations and recommended that all of the following be done:

(1) the President of the United States continue to give visibility to vocational student organizations, that he suggest appropriate legislation to the Congress, that he include in his budget support to establish, expand, and extend these organizations throughout career education;

(2) the Congress recognize vocational student organizations as integral to instructional programs in all areas of career education, and support them financially;

(3) the U.S. Commissioner of Education provide support for vocational student organizations by: (a) drawing federal guidelines for future State Plans for Vocational Education which assure student organization programs an integral role in programs of instruction; (b) providing a guaranteed set-aside for student organizations in the U.S. Office of Education budget; (c) providing a number of staff positions to coordinate the activities of the various student organizations, to assure that their programs and activities are in harmony with national policies and objectives, and to assist in developing, expanding, and promoting such organizations; (d) requiring teacher training institutions which receive federal funds to incorporate in their programs instruction in the methods, techniques, and philosophy of student organizations.

(4) the student organizations themselves launch a massive campaign with financial and professional assistance from the U.S. Office of Education to take their story to every local district,

every State Board, every teachers' group, every State Legislature, the U.S. Congress, and to the general public;

(5) the nation's mass media join in this effort;

(6) schools make the student organizations' programs available before grade 10 so students who leave school before completing twelve years of high school may be exposed to their dynamic programs (8).*

(8) National Advisory Council on Vocational Education Reports.

* See Discussion Question G.

F. Study Activities

Based on your reading of the content outline, the information provided with the learning activities, and the recommended learning materials, complete the activities on the following pages.

1. What questions would you like to be able to answer in writing before making a comprehensive review and evaluation statement of your program, or a program with which you are familiar?

2. Based on your reading and your own experience, list seven questions that demonstrate critical thinking as it is applied to the facts and assumptions which might be used in program evaluations and reviews. For example:
   Are the statements in the review (or evaluation): (a) reports of observations? (b) inferences from what has been observed? (c) "hearsay"?

3. Evaluate some manpower data that you have collected as evidence of the need for more vocational training programs in an occupational service area in which you are interested.

Design alternative solutions to the problems described in each setting below.

4. A program director for a very popular power sewing program sees a need for more equipment and more space for student work stations. Employment opportunities related to the program are increasing as is student interest. One solution to the problem is to budget for more equipment and additional buildings.

   Describe two alternative solutions.

5. A large school district has a pupil-counselor ratio of 530 to 1. On a recent survey, students indicated that one of the major deficiencies of the school program was a lack of any career counseling. The dropout rate is high and statistics show a high rate of unemployment among youth in the district.

   Identify two different solutions to this problem.

6. Describe different kinds of information that would be helpful before seeking alternative solutions for vocational education programs.

7. Describe three or four guidelines useful when identifying alternative solutions to vocational education program needs.

8. Using the guidelines provided in your reading, make several recommendations which would be the best possible solutions to problems associated with your program (or school, or one that you know about).

9. Which recommendations by the National Advisory Council do you consider most important? Rank them in order up to 5.

10. Which recommendations do you feel have had the most impact? Explain and support your statement.

(See Appendix A for possible answers.)

Content Outline	Activities-Resources

Goal 5.2: Conduct a Complete Preliminary Investigation Resulting in a Proposal for Initiating a New or Improved Vocational Education Program.

A. Introduction

1. The first four objectives in this module were concerned with reviewing and evaluating vocational programs and manpower needs, estimating needs and identifying alternatives for future vocational programs, and making recommendations for vocational programs.
2. Reviewing, evaluating, estimating, identifying, and recommending are all tasks that require special skills. These skills are particularly useful to the curriculum specialist beginning the planning that will provide the foundations of a new or improved vocational education program. These skills are needed to conduct an efficient and complete preliminary investigation for program planning. The preliminary investigation is the most important part of the pre-planning process.
3. The purpose of this section of the module is to illustrate and analyze the preliminary investigation in order to assist future curriculum specialists in developing an efficient and effective approach to vocational education program development.

4. The preliminary investigation, which, in fact, is a guideline for proposal writing, includes the following major items:
   a. occupational description, rationale for the occupational program, and sources for additional information;
   b. the employment picture related to a specific occupational program;
   c. the current status of a specific occupational program;
   d. the economic considerations related to the occupational program;
   e. the personnel considerations related to a specific occupational program;
   f. the work experience considerations related to program development;
   g. health and safety hazards associated with a specific occupation; and
   h. union and community attitudes regarding the specific occupational program (3).

(3) Adapted from Resource Guide for Administrators of Occupational Education, p. 46.

B. Promoting a New Occupational Program*

1. A statement providing basic information for promoting a new occupational program should include at least the following kinds of information:
   a. Name of the proposed occupational program and the nature of the work, clearly described. For instance:

* Students should begin Classroom Activity 7. See Part III.

Printing Occupations (11)

Phase I (Composing Room Workers)

Background Information*

Production of printed materials involves workers in a wide variety of occupations. Printing craftsmen who in 1968 numbered over 412,300 represent a large segment of these employees. Printing craftsmen usually specialize in one area of printing operations; for example, type composition, photography, platemaking, presswork, or binding. Their training, moreover, is confined largely to only one of the basic printing methods--letterpress, lithography, or gravure.

[The composing room workers are one of the largest groups of employed printing craftsmen.] This group includes hand compositors, typesetting machine operators, make-up men, tape-perforating machine operators (teletypesetters), and proofreaders. Other large groups of skilled workers are printing pressmen and their assistants; lithographic craftsmen, including cameramen, artists, strippers, platemakers, and lithographic pressmen. Bookbinders, photoengravers, electrotypers, and stereotypers are other important printing craftsmen....

Maintenance machinists, who repair and adjust typesetting machines, printing presses, or bindery equipment, are another group of skilled workers employed in large plants.

b. Target of this proposal:

Composing Room Occupations

Background Information

The printing process begins in a composing room where manuscript copy is set in type,

(11) Occupational Outlook Handbook. Students should use the most recent edition of this handbook for current information.

* Discuss this example in relation to student efforts in conducting a preliminary investigation.

proofed, and checked for errors. Machine and handset type, and other materials, such as photoengravings, are assembled there and prepared for the pressroom.

Composing room occupations offer many opportunities for persons interested in learning a skilled craft. Compositors usually have year-round employment and very good earnings. Composing room workers include compositors who set type by hand; typesetting machine operators who operate semi-automatic typesetting machines; tape-perforating machine operators who perforate tapes used to operate some typesetting machines; bankmen who assemble type in shallow trays called "galleys" and make trial proofs of this type; proofreaders who check the galley proofs with the original copy for errors; make-up men who assemble type and photoengravings in page forms; and stonehands, who arrange the pages in proper sequence (11).

(11) Occupational Outlook Handbook.

c. Nature of the Work:*

Hand Compositors (typesetters) (D.O.T. 973.381) make up the oldest composing room occupation. Today the majority of type that is set by hand is for work requiring very fine composition, usually larger size type being used for advertising copy, and for small jobs where it would be impractical to set the type by machine.

In setting type by hand, the compositor, reading from the manuscript copy, first sets each line of type in a "composing stick" (a device which holds type in place) letter by letter and line by line. When this stick is full, he slides the completed lines onto a shallow metal tray called a "galley."

* Discuss this example with students in order to assist them in conducting their own preliminary investigation.

Typesetting machine operators are craftsmen who operate semi-automatic machines which set type much more rapidly than the hand compositors. The type size used in machine set composition ordinarily is much smaller than that set by hand.

Linotype (or Intertype) machine operators (D.O.T. 650.582) reading from the copy clipped to the machine's copy board, select letters and other characters by operating a keyboard which has 90 keys. As they press the keys, the letters, in forms of metal molds called matrices, are assembled into lines of words. A spaceband key provides the necessary spacing between words. As they complete each line, the operators touch a lever and the machine automatically casts the line of type into a solid metal strip called a "slug." The slugs are then deposited in a galley and are later assembled into the type forms from which either the printing impressions or the plates are made. Nearly all newspaper plants, large commercial shops, and typographic composition firms use these machines and operators to set type. In the smaller plants, the typesetting machine operator maintains and repairs as well as operates the typesetting machine. In the larger plants, maintenance machinists are employed to make all but minor adjustments to the machines.

Other typesetting machine operators work on Monotype machines. One machine is called the Monotype keyboard and the other is the Monotype caster (11).

(11) Occupational Outlook Handbook.

Monotype keyboard operators (D.O.T. 650.582) operate keyboards quite similar to those on a typewriter, but which include about four times as many keys. The keyboard machine produces a perforated

paper tape which later is fed into the casting machine. The keyboard operator must be able to handle complicated copy, such as statistical tables (11).*

2. The statement of basic information should also include estimates or recommendations on the length of the training period necessary to gain designated entry-level competencies.
3. Information about key persons in the occupation is very useful and should include local people who would be available for consultation.
4. The statement of basic information should also include a list of occupational organizations.
5. It should also include a list of employers in the district, state, or region.
6. Finally, an explanation of the appropriateness of the proposed program to a particular school or district should be included (3).

(11) Occupational Outlook Handbook.

* See Discussion Question H.

(3) Resource Guide for Administrators of Occupational Education.

C. The Employment Picture

The second step in a preliminary investigation for vocational education program development is to gather information about employment opportunities and conditions in the service area of the proposed program, including:

1. existing surveys of the employment market which relate to the specific occupational program;*
2. an explanation or illustration of the career ladder (or lattice) potentials of the job;
3. an indication of the shortage/surplus trends in the specific occupation;
4. an indication of the seasonal or fluctuating trends of the occupation;*

* Refer to pp. 103-109 of the sample proposal for examples related to this topic.

* See Discussion Question I.

5. An identification of the geographical areas or locations of highest employment for the occupation (3).*

(3) Resource Guide for Administrators of Occupational Education.

D. Current Status of Occupational Program

A third step in the preliminary investigation is a study of the present condition of the proposed occupational program within the district. Necessary information includes:

1. existing surveys or information regarding similar programs;
2. a recommendation as to the most appropriate educational level for this proposed program;*
3. available information about success or problems in regard to the occupational program;
4. existing information about enrollment, retention, and placement records;
5. information regarding exploratory or feeder programs, if any, at lower levels.

* Classroom Activity 8 is related to this information.

* Classroom Activity 9 is related to this information. Also see Discussion Question J.

E. Economic Considerations

1. The next step in initiating a new vocational education program is a description, most often an estimate, of the cost of the program. This should include information about the following items:
   a. initial costs of the program (facilities, equipment, curriculum guides, etc.);
   b. estimated ongoing costs of the program (supplies, transportation, inservice, etc.);

c. student-teacher ratio and per pupil cost of the program;
d. suggestions on how the program can be financed (3).

2. Many problems are associated with the financing of vocational education programs. A brief review of some of the major funding problems may help the curriculum specialist understand and present financial information. The second report of the National Advisory Council emphasized the following concerns:
   a. On the local scene, one of the more intricate economic problems is calculating budget increases for program improvement, extension, or changeover. In estimating changeover costs to a more efficient management and instructional system, the state of California was provided with the following information through private research efforts:

      An estimate was made of the total statewide costs for the changeover to the new learning management system. California has about 400,000 students in grades 9-12. Assuming an average additional annual cost of $150/pupil, the statewide cost over a 5-year period would be $300 million. At the lowest figure of $125/pupil, the statewide cost would be $250 million, while the highest per pupil cost of $200 would make the statewide cost come to $400

(3) Resource Guide for Administrators in Occupational Education.

over a 5-year period, assuming a major change in all districts. Thus $50-80 million added funding would be needed each year for the next 5 years if all districts were to change over at maximum speed. It is of course more likely that a statewide change will require something like 10 years which would imply some $25 to 40 million in added cost per year. It should be noted that the costs of the above change in the management and instructional system do not reflect a complete restructuring of the high school curriculum where the present curriculum emphasis is approximately 60% college prep, 20% vocational, and 20% general education to a more realistic 60% vocational and 40% college prep. Of course not all schools are going to change over in 5 years, and we have indicated the annual cost if the whole state changes over in 10 years (1).

(1) A Policy and System Study of California Vocational Education, pp. 121-127.

Actually it is unlikely that changeover will ever be statewide. Also, changes usually take place along a so-called "S" curve--only a few schools change in the early years, then as the new way is proven, more and more schools change. As time goes on, those that are going to change will have begun and the curve of accumulated changes flattens out (1).

(1) A Policy and System Study of California Vocational Education.

STATE LEVEL
IMPLEMENTATION MANAGEMENT COSTS (1)
(thousands of dollars)

	Item	Personnel	Salaries and Support Costs*	Timing or Priority
1.	Guidance & Counseling Statewide Working Conference	To be handled by Pupil Personnel Bureau & Vocational Education Section, State Department of Education.	10	Immediate
2.	Expansion of T&I Teacher Education	2 new teacher educators	50	Immediate
3.	Specialized credential processor	1 professional & assistants.	40	Immediate
4a.	Minority teacher education including planning	1 professional per 10 recruits	25	Immediate
b.	Support for program		100	Immediate
5.	Board discretionary planning funds	none	250	Immediate
6.	State Department of Education Project Managers	6 professionals	150	Immediate
7.	Interagency Task Force for planning, collection of state & regional occupation information	No new personnel	10	Immediate
8.	Management Information Systems	5 professionals	100	Immediate

* Including secretarial-clerical support staff.

(1) A Policy and System Study of California Vocational Education.

F. Personnel Considerations

The fifth step in the preliminary investigation concerns information regarding personnel--students and professionals.

1. What indications of student interest have been demonstrated?
2. What admittance qualifications, if any, would be required?
3. What are the characteristics of students who would be most likely to complete this program?
4. Are qualified instructors available? (3)
5. What leadership is available? There is a great need for better leadership at the local and state levels. Under the 1968 Amendments the federal leadership role was shifted to put more emphasis on administrative and statistical responsibilities; the programming role was given to the states, with a high degree of local involvement made mandatory. This shift has increased the need for local vocational education leaders who have the competence to plan, operate, and evaluate vocational programs on the secondary and postsecondary levels. These new leaders should have the conceptual, technical, administrative, and human relations skills needed to develop programs that will serve both the individual and society (13).

Most vocational administrators are recruited from teaching positions and vocational teachers generally have a high degree of competence in a particular occupational field. Leaders

(3) Resource Guide for Administrators of Occupational Education.

(13) Leadership in Administration of Vocational and Technical Education, pp. 101-102.

in vocational education can no longer follow their specialized roles exclusively; they must be both specialists in vocational education and behavioral scientists as well. They must be able to relate vocational and technical education to business and industry, to government and to education in general. They must be able to conceptualize the new and emerging relationships and set new goals for vocational education (13).*

(13) Leadership in Administration of Vocational and Technical Education.

6. How can business and industry be involved? Three major techniques have been used by educators for involving business and industry personnel in vocational and technical education programs:
   a. the advisory committee;
   b. the school-appointed coordinator or special consultant for industry liaison;
   c. the local trade and professional associations in the community (6).

(6) Dimensions of Manpower Policy: Programs and Research.

* Classroom Activity 10 is related to this information.

G. Work Experience Considerations

1. Vocational and technical education, with its emphasis on preparation for jobs and careers in trade, industry, agriculture, business, and sub-professional fields, must plan appropriate work experience for students.
2. The interdependence of industry and education has been recognized throughout the history of vocational education.
3. Vocational education, more than any other kind of education, offers unlimited opportunity for

involvement by representatives from business and industry.

4. The effectiveness of the involvement of business and industry can well determine the practical effectiveness of the vocational education programs provided by the public schools for developing manpower resources (6).

(6) Dimensions of Manpower Policy: Programs and Research.

5. Crucial to the development of effective industry-education cooperation is the need to correct the lack of organized cooperation among the advisory committees and cooperative programs of the vocational and technical schools within a given school system or metropolitan labor market area (6).

(6) Dimensions of Manpower Policy: Programs and Research.

H. Health and Safety Considerations

1. Congress passed the Occupational Safety and Health Act of 1970 with the intention of reversing a rising rate of job-related deaths, injuries, and illnesses. Its implementation brought three new federal agencies into being, the Occupational Safety and Health Administration (OSHA) in the Department of Labor, the National Institute of Occupational Safety and Health (NIOSH) in the Department of Health, Education, and Welfare, and the independent Occupational Safety and Health Review Commission. These agencies have hired nearly 2,000 persons to handle the research, inspections, enforcement, training, and administrative tasks entailed in improving occupational safety and health nationwide (10).*

(10) Manpower Report of the President. Students should use the most recent edition of this annual report for the most current information.

* Classroom Activity 11 is important here.

2. The act provided that states may set up and enforce their own occupational safety and health plans provided these plans are "at least as active" as the federal program. State plans are submitted to OSHA for approval. (More than 29 have been approved and 27 others were under review at the end of 1973; almost 4,000 individuals were employed in carrying out the 16 plans which were in active operation.)
3. The upsurge of activity in job safety and in protecting workers' health has led to a shortage in trained and experienced professional workers in the field. Although the shortage is not critical, it may intensify as federal and state programs expand. Contributing to it has been the quickening interest of both business and labor in the safety and health of the work force; businesses, especially larger firms, are hiring increasing numbers of safety professionals to design and carry out programs, partly because labor groups have become more safety conscious. Agreements on action to correct unsafe and unhealthful conditions guaranteeing protection from future risks were introduced into a number of labor-management contracts negotiated in 1973.
4. Unions are also hiring safety directors to train workers in safe working practices and cooperate with management in ensuring satisfactory working conditions. Further demands for professional safety personnel originate with insurance companies and consulting firms which are expanding safety and health services

to clients seeking to avoid federal and state penalties for job hazards. Furthermore, industrial hygienists and industry doctors and nurses are in increased demand and more and more research is focused on the care and prevention of illness related to dust, poor ventilation, heat, and fumes and inhaling or handling of toxic substances used in industry, especially petroleum and plastics (10).

(10) Manpower Report of the President, 1974, p. 47.

5. The very nature of vocational education creates problems of health and safety which need to be weighed in the decision-making process concerned with pre-planning. Questions based on such possible problems as hazardous equipment, toxic fumes, dangerous acids, and a host of similar or related concerns must be asked:
   a. In what institutional setting should the program be located?
   b. Is it a program that can be housed in a school facility?
   c. If the program can be housed in a school, are the costs related to a highly hazardous instructional program prohibitive?
6. Considerations involving level of student have to do with appropriateness for high school instruction, or for community college, or if for neither of these programs, is trade extension the appropriate institutional setting? Maturation is one factor that affects the decision to place the program in the community college. Now that 18-year-olds are classified as adults and can be legally responsible for

decisions affecting their own health and safety, the community colleges can offer programs where the safety factors would prevent the high schools from considering them.

7. While the decision whether the program should be located in a high school, occupational center, or a community college may be negative because of health and safety factors, there are still other options available. These institutions might still offer the program by using industrial facilities for the laboratory phases of the instructional program. The laws governing health and safety on school sites are considerably more stringent than those placed on business and industry. A cogent argument to conduct instructional programs for occupations in which the health and safety problems are severe could, nevertheless, be developed on behalf of the schools. The basis for this argument is that a formalized instructional program can be more effective than some of the present catch-as-catch-can learning that exists in some industries.
8. The costs involved in establishing instructional programs with high risks to health and safety are a major determinant in whether or not a school should conduct a program. The costs, which would be identified in the preplanning phase of curriculum development, can include safety clothing for students, equipment guards, special ventilation systems, and many others, and could thus be a consideration that would push the program into a business or industry site under school administration.

I. Union and Community Attitudes

1. Crucial to the development and maintenance of good relationships with local communities and trade unions is improved state planning supervision and coordination for local programs.

2. {All educators} must broaden their vision to recognize that industry {and community} participation and involvement in the occupational program of the public school system is not a goal in itself. Rather it is the means for developing a sense of identification on the part of representatives from all segments of our economy in the programs of and problems of the public schools. To achieve this identification, more than occasional meetings and sporadic cooperative activities of educators and industry people is required. Educators must provide ways, means, and strategies so that industry people may identify themselves with, and feel themselves full-fledged partners in solving, the problems of the schools and the school systems of our nation. Only through such a partnership will our schools and our communities be in a position to offer purposeful, meaningful, and effective education for the world of work (6).*

(6) Dimensions of Manpower Policy: Programs and Research.

* See Discussion Questions K and L.

J. Study Activities

The first step in writing an effective occupational program proposal is to conduct a complete preliminary investigation. The learning activities related to Goal 5.2 are designed to guide you through all the activities necessary for completing a preliminary investigation. For the purposes of these activities, select an occupational program that is of interest to you, or one which will be of interest to you in the future, or one that you are currently working on. Answering the questions in this section will help you to write a comprehensive program proposal. Use the example proposal beginning on page 87 to check your answers.

1. What is the title of the occupational program you have selected?

2. What does the worker do in this occupation?

3. How long should the training period be?

4. List key persons in the occupation (preferably those immediately available for advice and assistance).

5. What are the related occupational organizations?

6. Who are the employers?

7. Why is the program appropriate to your particular school or department at this particular time? (NOTE: The program review and evaluation that you completed in the first part of this module may be used here.)

8. In relation to your proposed occupational program, what surveys of the employment market have been conducted? (NOTE: Use information that you gathered in the first part of this module and in Module 4.)

9. Is there a shortage or surplus of workers in this occupation?

10. What are the career ladder potentials of this job?

11. Is the work seasonal?

12. Does need for the occupation tend to fluctuate (e.g., as in the space industry, war industry, etc.)?

13. Is employment for this occupation centered in your district?

14. What surveys or information on similar programs is available?

15. Is there any duplication of programs?

16. What educational level is most appropriate for this program?

17. What information about successes or problems is available in regard to your proposed programs?

18. What are the enrollment retention and placement records?

19. What will the initial costs of the program be? (Include salaries of faculty, costs of equipment, curriculum guides, etc.)

20. What are the estimated ongoing costs of the program (supplies, transportation, in-service training, etc.)?

21. What is the estimated student-teacher ratio?

22. What is the estimated per/pupil cost of the program?

23. How can the program be financed?

24. How many students have shown an interest in the program?

25. Are there student entry requirements?

26. What are the characteristics of students who are likely to be interested in completing this program?

27. Who is qualified to teach this program?

28. What is the lecture-laboratory ratio?

29. What work experience is required for this occupation?

30. What work experience opportunities are available in the district?

31. What opportunities are available for a cooperative education program?

32. List all the health and safety hazards associated with the particular occupation.

33. List the health and safety hazards associated with training for this particular occupation.

34. What unions are associated with this occupation?

35. What position do the unions take in regard to vocational training for this occupation?

36. What evidence is there of community approval or disapproval of the program?

Content Outline	Activities-Resources
Goal 5.3: Complete the Pre-Planning Process for Vocational Education Program Development by Following an Appropriate Curriculum Approval Procedure.	
A. Discussing a New Occupational Program with Faculty and Administrators*	* Students should complete Study Activity 1 before proceeding.
1. After a new idea for an occupational program has been thoughtfully conceptualized and committed to paper, the idea should be communicated as clearly and broadly as possible.*	* Students will need class time and instructor assistance in completing Study Activity 1. Also see Classroom Activity 12.
2. Above all, staff faculty, administrators, and school trustees or board members involved in the program or promotion of the program should be the first to hear about it.	
3. Social, psychological, and political factors are involved in program decision-making. Every decision is ultimately a human judgment (13). It is very important to understand the point of view of other people involved or potentially involved in the program. Try to establish the following with other staff, faculty, and/or administrators:	(13) Leadership in Administration of Vocational and Technical Education, p. 118.
a. tentative decision to continue development	
b. tentative confirmation of faculties;	
c. possibilities for budgeting;	
d. potential problems or obstacles;	
e. potential involvement of other staff members;	

f. suggestions for improvement (3).

B. Presenting an Occupational Proposal through a Curriculum Approval Procedure *

1. After the proposal has been completed, the task of synthesizing the information for each presentation remains.
2. The ability to summarize major points in the proposal is crucial when presenting it to a body of decision-makers. They will want to know the major advantages and disadvantages of the program in addition to the other facts presented in the proposal.
3. Presentations should be tailored to fit the group for whom it is intended. Curriculum committees will want different information than will a board of education or an advisory committee.
4. Summarizing by using visual aids is often effective and to the point. Copies of important material should be provided to each member of the committee. Encourage questions and suggestions.
5. It may be necessary to contrast the proposed program with outdated programs, revealing such characteristics as:
   a. a chronic lack of student interest in the program;
   b. a lack of jobs in the areas for which the graduates were trained;

(3) Resource Guide for Administrators of Occupational Education.

* See Classroom Activities 13 and 14.

c. a preponderance of antiquated equipment and instruments in poorly functioning laboratories and shops (4).

(4) Principles of Postsecondary Vocational Education.

C. Selecting and Using an Interim Advisory Committee

1. Advisory committees have been used traditionally in vocational and technical education for curriculum development and review.
2. The purpose of the interim advisory committee is to obtain community and labor input before and during curriculum development (13).
3. The interim advisory committee can check on the accuracy of the information collected for the proposed occupational program.

(13) Leadership in Administration of Vocational and Technical Education, p. 252.

4. The interim advisory committee, comprised of influential community members and opinion leaders who are willingly and actively involved in the mission of vocational-technical education is an important link between the school or college and the community. Involving the committee during the pre-planning ensures greater commitment and cooperation (13).*

* See Discussion Question M in Part III.

D. Study Activities

1. In order to complete the exercises related to Goal 5.3, you will need to transform the information you have collected for Goal 5.2 into a proposal format similar to the sample provided on page 87 of this guide. The resulting proposal will also be used as a practical assessment of your achievement of the objectives of this module.

   Using the information you collected for the objectives of Goal 5.2, write a complete proposal for an occupational program. You may use the same format as the sample contained in this module or you may prefer a modified form. It is, however, important that you include information on all of the topics discussed under Goal 5.2, unless they clearly do not apply.

   Part of your grade will depend on how well you address the questions in the preliminary investigation and transfer such information to proposal form. Below is the form to be used in evaluating your proposal.

Proposal Evaluation Form

a. Appearance, style - Total 25 points
   - typed
   - adequate sentence and paragraph structure
   - spelling
   - readability

b. Organization - Total 25 points
   - logical development
   - table of contents

c. Content - Total 50 points
   - basic information
   - employment information
   - program status information
   - financial information
   - personnel information
   - work experience, placement information
   - health and safety information
   - union and/or community attitudes

2. Prepare an oral presentation of your proposal.

3. Divide the class into groups of hypothetical faculty members and administrators.

4. Present your proposal to the class. The presentation should not exceed 15 minutes. Ask for suggestions from each group following the evaluation form presented on page 56.

5. After your presentation write down all the suggestions. Then assume the role of an interested teacher or administrator and listen to the next presentation.

6. What would be the most effective way of presenting your proposal to the district curriculum planning committee? Outline your approach in terms of what you would do first, second, third, etc.

7. After receiving the "go ahead" from the curriculum planning committee, forming an interim advisory committee would be advisable. A well-informed committee can check the accuracy of all information obtained for the proposal; help determine entry-level skills for the occupation(s) concerned; help develop student performance goals for the program; and recommend the acceptance of the proposed program (6). People appointed to the interim advisory committee should be willing to participate and should be made fully aware of the expectations of the administrator or curriculum coordinator (12).

   What tasks would you want an interim advisory committee to perform?

Part III:

Group and Classroom Activities

PART III
GROUP AND CLASSROOM ACTIVITIES

Classroom Activities

NOTE: The following activities are designed for use in the classroom to stimulate discussion on specific topics covered in this module. The activities are designed to be used following student self-study; however, depending on the background and abilities of students, these activities may not require previous study. All classroom activities are keyed to the content outline to indicate an appropriate point for participation.

1. As an introduction to this module, ask students to read the Overview and Rationale in their guides carefully. Then have them write down the steps they consider most important in preparing a new vocational education program prior to actual curriculum development.

   Example:
   1. Review and evaluate current status of vocational education programs.
   2. Review and evaluate manpower data.
   3. Identify problems.
   4. Estimate needs.
   5. Identify alternatives.

   Ask several students to present their lists. Try to reach a class consensus as to the necessary preliminary activities for program development and make a list of them on the blackboard as you proceed.

2. Review all the pertinent manpower information obtained from secondary sources that the students collected in Module 4. Discuss the information in light of the statements in the content outline.

   For example: What is the intent of the data? Is it possible that some statistics are misleading? Just because employment opportunities are increasing more rapidly in service-related occupations does not mean that manufacturing-related occupations are decreasing. More jobs may actually be contained in manufacturing. How

is the data collected? What is the margin of error? What are the implications of specific aspects of the data? Have the conclusions been evaluated?

3. Ask students to identify two of the most important needs of the vocational programs they have been associated with recently.

   Example: 1. more attention to cooperative and work experience programs

4. Organize students into small groups. Ask each group to identify the single greatest problem in vocational education today. Have each group present its problem to the class, then discuss the needs that these problems generate for vocational education program planning.

   Example:

   Problem

   The unrealistic career goals of students.

   Program needs

   a. to attract to the vocational program students who are capable of profiting from vocational courses;
   b. to strengthen public support for vocational education programs;
   c. to improve the career guidance, counseling, and placement systems.

5. Reconvene the small groups that were organized for Classroom Activity 4. Ask students to review the problems and needs they stated previously. Then have them "brainstorm" as many alternatives for meeting the needs as possible. Encourage students to search for creative solutions.

6. Ask students to relate the NACVE recommendations to the recommendations made in cases they are familiar with to recommendations they would make for their own programs.

   Example:

NACVE	CASE STUDY
Recognize that employment is an integral part of education	High schools should reconstruct their curricula around the principle of preparing each student for the occupation he must undertake immediately upon leaving school.

7. The purpose of the Classroom Activities related to Goal 5.2 is to assist the student in completing the occupational program proposal. Various activities will be suggested under each objective which are designed to help the student each step of the way. It is recommended that sufficient class time be allowed for the student to work on the proposal as it is a time-consuming task.

   To achieve Objective 5.21, suggest that the student use the Occupational Outlook Handbook or the Dictionary of Occupational Titles.

8. Review Module 4 for information related to employment statistics and see the information related to Goals 4.3 and 4.4. Then analyze the following manpower statement with students.

   While concern and emphasis in vocational education has turned toward student needs, planning and management ultimately must make reference to the job and industry trends in California. California needs about 500,000 new workers each year. Vocational completions in the State approximate 175,000 persons yearly, from high school and community college programs. The "planning gap" offers an opportunity for vocational education to expand its programs.

   In the past California has lacked statewide, regional, and often local manpower data for guiding resource allocation in starting new programs or closing old ones. Local manpower data were and are obtained program by program from industry advisory committees and, infrequently, by countywide surveys.

   Tables in the report show past and projected employment distributed according to major occupation and industry categories, with further detail on the manufacturing and service sectors. For vocational education, a most important trend is the shift in employment from manufacturing to the service sector. The percentage of California employment in manufacturing will shrink from 25% of the total in 1960 to about 20% of the total in 1975. During the same period the service sector will grow from 25% to about 32% of the total employed in California. The proportion of white-collar workers as a percentage of the total labor force will grow to 56% by 1975 from 1960's 51.5% with most of the increase (13.7% to 17.2%) accounted for by professional and technical workers. The services industry is expected to grow most rapidly, and among the service workers, health and education are the two fastest growing employment sectors.

From the point of view of occupations, five of the eight major groups each comprised between 11% and 16% of the total in 1960. These are:

a. clerical and kindred workers

b. operatives and kindred workers

c. craftsmen, foremen, and kindred workers

d. professional, technical, and kindred workers

e. managers, officials, and proprietors

These data provide the State Board with one important checkpoint for allocating resources to vocational programs. Wide distribution of this information will allow districts and areas to use the data in conjunction with the manpower requirements of their locale and as a crucial part of the career information and guidance subsystem. The State Department of Education may then analyze the distribution of its funding against the overall state economic needs as one method of management control and planning. This is not meant to suggest that a strict uniformity to the proportion of each industry and each occupation is the proper allocation. Costs, benefits, growth rates, student needs, employee turnover rates, area and local economic conditions and other factors should be analyzed in conjunction with these data.

The State Board must arrange for systematic and periodic collection of manpower data for use by State, Area, and County levels of vocational educators and planners. Although manpower projections have been called for under the law in the past, the State agencies with the technical capability to carry out the task have not been funded. If at the end of the current fiscal year, a project is not underway to make the necessary study on a yearly basis, the State Department of Education should request funds and personnel to undertake the work.

Topics for analysis might include:

a. Which employment statistics are emphasized?

b. What rationale is given for using manpower data?

c. What are the implications of this report for vocational education program planning?

9. Review with students the information they collected for Goal 5.1 of this module. Much of that information will be useful in achieving Objective 5.23.

Suggest that students seek this information in their own schools or in their district and regional offices.

10. Ask students to consider what characteristics are necessary in leaders of vocational education.

    For example, leaders must be able to relate vocational education to business and industry, must have expertise in vocational education as well as in the behavioral sciences.

11. Have students describe their personal experiences with health and safety regulations in vocational training settings.

    For example, some vocational teachers must constantly be aware of hazards due to machinery; others due to environmental conditions.

    Are there any settings in which there are no health and safety hazards?

    Most laboratory situations imply the need for specific rules and regulations in order to avoid accident or injury to participants.

12. Allow class time for students to complete their occupational program proposals. Assist individual students as they begin to organize the information they collected under Goals 5.1 and 5.2 in order to write their proposals.

13. Students will need to work in small groups in order to complete the objectives of this module.

14. Ask students to report the result of their work on Study Activity 1 under Objective 5.32 in class.

Discussion Questions

A. What are some of the most important questions to ask when reviewing and evaluating the status of vocational education programs?

(Questions will depend upon the purpose of the review; nevertheless, the following examples seem to be consistently important: What are employment opportunities? What are current vocational enrollments? What is the projected need for this field? What are job requirements? What is the cost? Does the program lend itself to institutional development?)

B. What are some specific examples of when a critical-thinking process similar to the one described would be needed or helpful?

(Sometimes citizen, civic, or professional labor groups at the local level pressure the school or college for a particular program. At times these demands are self-seeking while at other times they are completely altruistic. Occasionally business-industrial concerns honestly overstate their needs for certain kinds of occupational preparation. If the school or college accepts such demands at face value, tremendous difficulty in placement may result.) (4)

C. Is the statement related to this question consistent with the 1968 Amendments concerning the philosophy of vocational education programs in meeting the needs of handicapped and disadvantaged students?

(Does this imply enrollment restrictions? Does it mean that only select students can profit from vocational education? Does it mean that vocational education can be adapted to meet the needs of women, minorities, disadvantaged, and handicapped?)

D. Ask students to discuss all the steps in a problem-solving approach to decision-making.

(The discussion might focus on the following steps:
1. identification and analysis of the problem;
2. search for alternative solutions;
3. selection and implementation of the best alternative solution; and
4. review of actual consequences and possible remedial steps.) (13)

E. As a review of the first part of this module, ask students to list (or discuss) the tasks which necessarily precede a well-informed recommendation for future program development in vocational education.

(Such tasks should include: program review and evaluation, manpower review and evaluation, identifying problems, estimating needs, searching for alternative solutions.)

F. Ask students to discuss other characteristics of good recommendations.

(Other characteristics might include:
1. a review of consequences and possible remedial steps in regard to the recommendations given;
2. a suggested procedure for making remedial steps if necessary;
3. awareness that few decisions are irreversible, and virtually no decision can be made and then forgotten.)

G. Ask students to make three or four recommendations for vocational education programs in general. Discuss the recommendations made by the students, comparing them to the recommendations made by the National Advisory Council.

H. Discuss the basic information given for printing occupations. You might emphasize the following points.

a. a single vocational training program may involve a number of occupations;

b. importance of thoroughly understanding the nature of the work before continuing the investigation.

I. What is meant by "seasonal" and "fluctuating"?

(Some occupations are seasonal, that is, they are affected by or dependent on a particular season of the year in terms of the demand for that occupation. Agriculture and construction jobs are examples of seasonal occupations.

Some occupations are fluctuating, that is, they have a continually changing or varying demand for them. Examples of fluctuating occupations are those in the space and war industries which depend on government contracts for their existence. If the Federal Government spends less in a given year than the previous year for space programs, then the number of jobs in the space industry decreases.)

J. Ask students to discuss the concerns related to educational level.

(Discussion might include: How should high school programs differ from community college programs and area vocational schools? How is duplication of programs prevented?)

K. What are the effects of union quotas and restrictive apprentice practices on school preparatory programs?

(Not all students who graduate from school training programs can enter specific trades due to quotas and due to biases regarding minorities and women.)

L. What are union policies regarding school-produced goods and services?

(For example, the unions in San Francisco restrict printing in school shops to 25 copies of any one document; they also stipulate that meat cut in a butchering class cannot be sold through regular retail channels.)

M. Conduct class discussion on any student concerns with module.

Part IV:

Student Self-Check

PART iV
STUDENT SELF-CHECK

Part A: Knowledge Assessment

GOAL 5.1

1. List four skills or techniques involved in the pre-planning of vocational education programs. (5.1)

2. What five important questions should be answered in a program review and evaluation? (5.11)

3. Critical thinking has been identified as very important in analyzing data and information about vocational education programs. What four major considerations are involved in the critical-thinking process? (5.11)

4. Why do schools often use secondary sources for determining employment opportunities? (5.11)

5. Nationwide, what broad occupational area has increased employment opportunities? (5.11)

6. Give three examples of occupations within service-producing industries. (5.11)

7. Estimating program needs follows what step in the pre-planning process? (5.12)

8. What statement in your guide was identified as a most important concept in estimating needs of vocational education programs? (5.12)

For Questions 9, 10, and 11, complete the following sentences.

9. Searching for alternative solutions to program needs is a very _____part of the pre-planning process. (5.13)

10. One alternative to purchasing more equipment for a vocational program is to _____. (5.13)

11. In order to find a number of alternatives for meeting program needs, you may have to _____the problems in the program. (5.13)

12. What activities must be done before alternatives to meeting program needs can be identified? (5.13)

For Questions 13, 14, and 15, mark the following statements "true" or "false."

13. Recognizing and correcting your own biases can influence your capacity to identify alternative solutions. (5.13)

14. It is advisable not to anticipate consequences of suggested solutions as this may inhibit decision-making. (5.13)

15. Making recommendations for present and future program development is the same as selecting the best alternative solution for meeting program needs. (5.14)

GOAL 5.2

16. List at least six different areas to investigate before writing an occupational program proposal. (5.2)

For Questions 17 and 18, complete the following statements.

17. The first step in writing an effective program proposal is to conduct a _____. (5.21)

18. Special skills or techniques helpful to writing a program proposal include: (5.21)

_____

_____

_____

19. What are two important considerations in describing the employment picture for a particular occupational program? (5.22)

20. What are two important considerations in describing the current status of a vocational program? (5.23)

21. What are two important considerations in describing funding possibilities for a vocational program? (5.24)

22. What are two important things to know about personnel when initiating a new vocational program? (5.25)

23. What work experience considerations should be made in developing plans for an occupational program? (5.26)

24. In addition to the proposal concerns described in Questions 19-21, what are two other topics for consideration in vocational education program proposals? (5.27, 5.28)

GOAL 5.3

25. Name three activities that would be most helpful in promoting a new occupational program after a proposal has been completed. (5.3)

26. What are three specific topics that would be valuable to consider in discussing an occupational program proposal with faculty and administrators? (5.31)

27. Suggest two techniques that would be useful when presenting an occupational program proposal to a curriculum committee. (5.32)

28. Describe three major activities of an interim advisory committee. (5.33)

Part B: Performance Assessment

1. Write an occupational program proposal.

2. Submit your proposal to another class member for evaluation.

3. Evaluate the proposal you have received according to the following criteria.

Proposal Evaluation

1. Appearance, style - Total 25 points
   - typed
   - adequate sentence and paragraph structure
   - spelling
   - readability

2. Organization - Total 25 points
   - logical development
   - table of contents

3. Content - Total 50 points
   - basic information
   - employment information
   - program status information
   - financial information
   - personnel information
   - work experience, placement information
   - health and safety information
   - union and/or community attitudes

4. After returning the proposal, discuss it with the writer. Work out any disagreements or problem areas.

5. Submit your proposal with the points assigned by the evaluator to your instructor.

Part V:

Appendices

PART V
APPENDICES

Appendix A:
Possible Study Activity Responses

GOAL 5.1

1. How many vocational students are there compared to the total secondary (postsecondary) enrollment?
   What is the current and projected employment outlook for occupations within the program?
   Are there equipment or facilities problems?
   Are there personnel problems?
   Are there community or union concerns?

   What are the characteristics of vocational education enrollment?
   What are program completion rates in vocational education?
   What are the placement rates for program completions?
   What resources for guidance and counseling are provided by the program?
   What selection procedures are used for vocational education students?
   What resources or programs are provided for persons with special needs?

2. Are the statements of fact reliable? (a) Who made them? (b) Is he a competent witness? (c) What was his purpose in reporting the facts? To make news? To eulogize? To discredit? To convey accurate information?

   Under what conditions were observations made? (a) Casual observation? (b) Carefully controlled experiments? (c) Under emotional stress?

   To what extent did the reporter depend on memory?

   Are all the facts presented as evidence relevant to the question? How might irrelevant facts be used to serve a writer's or speaker's purpose? To divert interest or attention from other facts? To stir feeling? To shape attitudes and dispositions toward the issue? To change perspectives?

   Are all relevant facts, both for and against, presented?

   If all the information pertinent to the question cannot be presented, is the selection a typical and fair sampling?

   Do the facts necessarily mean what the author interprets them to mean?

3. Most of the workers in the United States are employed in industries that produce services.
Service industries include education, health care, trade, repair and maintenance, government, transportation, banking and insurance.
Job growth will be greater in service-producing industries than goods-producing industries.
Government employment has grown faster than any other industry division, etc.)

Service workers' employment rolls burgeoned in the late 1960s and the early 1970s; although the rate of gain may slow somewhat, demands are expected to continue at least until the mid-1980s. This does not mean all service-related occupations will show growth. Fewer teachers will be needed, but there will be a greatly expanded need for employees in health services. Government will continue to be a major source of new jobs in health-related occupations. Health technicians are expected to be in great demand through the 1970s.

4. Contract for the use of industrial equipment during hours when they are not in operation.
Classes might be scheduled on weekends or in the evening.

5. Hire more staff.
Develop a regional career center to disseminate information and counseling services.
Acquire inexpensive career information, retrieval and disseminating systems such as VIEW (Vital Information for Education and Work).

6. An evaluation of current status of program under study.
An evaluation of manpower needs and employment opportunities in regard to program under study.
Basic problems in regard to program under study.
The needs reflected by program problems.

7. Reexamine the problem and the needs.
Consult a wide range of references and people.
Search for more than one solution to a problem.
Recognize individual biases and prejudices, including your own.
Anticipate the consequences of each solution.

8. An example answer is provided from recommendations made for Chicago Public Schools in an article entitled "Business Views Education in Chicago."

The Chicago Board of Education should:

a. Establish a Department of Evaluation Research as a resource within the Board of Education, having a staff recruited from outside the Chicago Public Schools. It should have free access to all financial, personnel, test, and administrative data in the central office and schools, and should collect other data as well (with appropriate confidentiality of sensitive individual information). A number of important broad evaluation studies should be completed and reported by this group within one year and at regular intervals thereafter. It should report directly to the board in public meetings, not through the general superintendent or subordinate administrators. The reports should hold all staff acountable for improving educational opportunity, equality, and performance. An unpaid group of local university professors should be appointed to ensure an effective and cost-efficient evaluation. Some evaluation efforts have already been discussed by Chicago United's Educational Advisory Panel.

b. Appoint a panel of distinguished school superintendents and university professors from outside the state of Illinois, as well as prominent business and community leaders from Chicago, to examine managerial effectiveness and decision-making efficiency and decision-making efficiency of the central area and district offices of the Chicago Public Schools. In addition, they should ensure that recommendations from existing research studies, such as those of the Governor's Commission on Schools Business Management Task Force, are implemented. The panel should answer the following questions: How can public school education in Chicago be made accountable to the board and the public? Can large overhead for administrative expense of the central office be reduced and spent in ways more directly beneficial to students? If principals and other administrators and teachers are to be made more accountable, how can decision-making authority be delegated to these levels and how can responsibility for financial resources be assigned to those directly engaged in the educational process? The panel and its staff should complete a report addressing these issues within a year, at the same time the first annual evaluation report is submitted by the Department of Evaluation Research as outlined in the first recommendation.

c. Develop an overall long-range plan of action for the school system in curriculum and related areas. While business and the general public can express their concern and willingness to assist in upgrading the schools, they are not educators and cannot tell the board how to educate. It is the board's duty to the people of Chicago to deal not only with day-to-day problems in the system, but to think in broad terms of the ultimate goals of the system and how they can be achieved.

d. Work with the business community in developing all aspects of career education, including a) introduction of students to the world of work, b) counseling based on the realities of the labor market, and c) vocational training relevant to the needs of business. A council should be appointed, composed of businessmen and representatives of the schools who are functionally responsible for career education. Its task would be to facilitate dialogue among all partners, so that practical steps could be taken for the mutual benefits of business (the employers) and students (the future employees). The business community is vitally interested in such a project and could be expected to devote considerable energy to it.

   Business leaders realize the difficulties of setting up effective work-study programs; but the effort is worthwhile, because it is in the best interests of students, schools, business, and the Chicago metropolitan community.

e. Adopt a system of accountability in the schools, using indicators which assess school and student progress. The Educational Advisory Panel of Chicago United has done some preliminary work in this area, and could provide assistance in the further development of specific indicators and a system for implementing them.

f. Support a Mayor's Conference on Public Education in the Central Cities, similar to the well-known White House conferences, where experts are brought together to discuss issues and solutions. The immediate purpose would be to create a sense of urgency and commitment of upgrading the city's public schools; the ultimate goal would be to give Chicago one of the best systems in the nation.

9. Example answer:

   a. Improve vocational guidance and community services
   b. Make every educational agency accountable for leaving students (placement agency)
   c. Recognize that employment is an integral part of education
   d. Establish residential schools for those who need them most
   e. Allocate more funds for research development, teacher education, curriculum in vocational education

10. Example answer:

    There is some evidence that cooperative education and vocational programs for the disadvantaged (mainstreaming) are two issues that have been carefully considered and supported. More programs in these areas are available than at any time past. However, there is still much to be done in both expanding cooperative education and in providing training programs for disadvantaged people.

GOAL 5.2

Use the example proposal found in Appendix B, pp. 87-110, to help you answer Activities 1-36.

GOAL 5.3

Activities 1-5 do not require responses.

6. Example answers:

   a. Select specific points to emphasize for each audience.
   b. Prepare visual aids.
   c. Prepare written handouts.
   d. Request assistance from appropriate resource people.
   e. Discuss the presentation with interested individuals.
   f. Plan to begin promptly, strive for brevity, and encourage questions.
   g. Plan several questions and anticipate other questions.

7. Review and evaluate proposal.
   Help establish necessary or desirable contacts with business and industry.
   Help disseminate vocational education program information throughout the community.
   Help in development of proposal goals and objectives.
   Provide advice and criticism regarding program development and process.

Appendix B:
Possible Self-Check Responses

Part A: Knowledge Assessment

GOAL 5.1

1. List four skills or techniques involved in the pre-planning of vocational education programs. (5.1)

   - review and evaluation of current program status
   - estimate of program needs
   - identification of program alternatives
   - making recommendations for vocational education program development

2. What five important questions should be answered in a program review and evaluation? (5.11)

   (Student answers should include at least five of the following questions:)

   - To what extent does the occupational field offer employment opportunities to those who are trained?
   - What has been happening to students after they leave the system?
   - What programs are available?
   - What are the enrollment statistics of vocational programs?
   - What are the available resources for the program?
   - What successes or problems are associated with the program?
   - What programs are available to the disadvantaged or handicapped?

3. Critical thinking has been identified as very important in analyzing data and information about vocational education programs. What four major considerations are involved in the critical-thinking process? (5.11)

   (Student answers should include at least four of the following concerns:)

   - determination of purpose, intent or viewpoint of source, writer or speaker

- determination of what argument or main ideas are used
- determination of whether or not the arguments, ideas, or conclusions are supported by fact and reason
- determination of what facts are used
- determination of what assumptions have been made
- determination of what means of evaluation are used for facts, reasons, ideas, or conclusions

4. Why do schools often use secondary sources for determining employment opportunities? (5.11)

   - economic reasons
   - time reasons

5. Nationwide, what broad occupational area has increased employment opportunities? (5.11)

   - service occupations

6. Give three examples of occupations within service-producing industries. (5.11)

   - transportation
   - public utilities
   - health
   - finance, insurance, real estate
   - government

7. Estimating program needs follows what step in the pre-planning process? (5.12)

   - identifying problems within vocational education programs

8. What statement in your guide was identified as a most important concept in estimating needs of vocational education programs? (5.12)

   - Recognize that collection of relevant information on program status, employment statistics, and manpower projections leads to better conclusions regarding program needs.

For Questions 9, 10, and 11, complete the following sentences.

9. Searching for alternative solutions to program needs is a very _____ part of the pre-planning process. (5.13)

   - creative

10. One alternative to purchasing more equipment for a vocational program is to _____. (5.13)

    - utilize community resources

11. In order to find a number of alternatives for meeting program needs, you may have to _____ the problems in the program. (5.13)

    - re-examine

12. What activities must be done before alternatives to meeting program needs can be identified? (5.13)

    - review and evaluate program status
    - review and evaluate manpower information
    - identify problems
    - estimate needs

For Questions 13, 14, and 15, mark the following statements "true" or "false."

13. Recognizing and correcting your own biases can influence your capacity to identify alternative solutions. (5.13)

    - true

14. It is advisable not to anticipate consequences of suggested solutions as this may inhibit decision-making. (5.13)

    - false

15. Making recommendations for present and future program development is the same as selecting the best alternative solution for meeting program needs. (5.14)

    - true

GOAL 5.2

16. List at least six different areas to investigate before writing an occupational program proposal. (5.2)

    (Student answers should include at least six of the following:)

    - employment picture
    - current program status
    - funding possibilities (costs)
    - personnel requirements
    - work experience and placement potential
    - health and safety hazards
    - trade union and community attitudes
    - sources for information regarding the project
    - job description
    - rationale, purpose, and justification of the programs

For Questions 17 and 18, complete the following statements.

17. The first step in writing an effective program proposal is to conduct a _____ _____. (5.21)

    - preliminary investigation

18. Special skills or techniques helpful to writing a program proposal include: (5.21)

    _____

    _____

    _____

    - reviewing and evaluating
    - identifying problems and solutions
    - analyzing information and data
    - reporting
    - organizing

19. What are two important considerations in describing the employment picture for a particular occupational program? (5.22)

    - current surveys of employment market
    - shortage or surplus of workers
    - seasonal or fluctuating characteristics of the work
    - placement opportunities
    - career ladder/lattice opportunities

20. What are two important considerations in describing the current status of a vocational program? (5.23)

    - surveys or information regarding similar programs
    - duplication of programs
    - appropriate educational level
    - information about successes or problems
    - enrollment and placement records

21. What are two important considerations in describing funding possibilities for a vocational program? (5.24)

- initial costs
- ongoing costs
- student-teacher ratio
- per pupil cost
- funding resources

22. What are two important things to know about personnel when initiating a new vocational program? (5.25)

- how much student interest
- student requirements and abilities
- teacher/instructor requirements and abilities
- characteristics of students

23. What work experience considerations should be made in developing plans for an occupational program? (5.26)

- work experience requirements for competing
- number and kind of work experience opportunities
- location of work experience opportunities

24. In addition to the proposal concerns described in Questions 19-21, what are two other topics for consideration in vocational education program proposals? (5.27, 5.28)

- health and safety hazards
- union and community attitudes

GOAL 5.3

25. Name three activities that would be most helpful in promoting a new occupational program after a proposal has been completed. (5.3)

- discuss the proposal (project) with faculty and administrators
- present proposal (project) to appropriate curriculum committee
- form and use an interim advisory committee

26. What are three specific topics that would be valuable to consider in discussing an occupational program proposal with faculty and administrators? (5.31)

- availability of facilities
- possibilities for budgeting
- involvement of staff and other departments
- decision to continue or discontinue development
- suggestions to strengthen the proposals

27. Suggest two techniques that would be useful when presenting an occupational program proposal to a curriculum committee. (5.32)

- use of audio-visuals
- summarization of each major part of the proposal
- hand-outs of all pertinent information
- brief approach
- asking for suggestions
- use of resource person

28. Describe three major activities of an interim advisory committee. (5.33)

- checking on accuracy of proposal information
- helping determine entry-level skills
- helping develop performance objectives
- providing clout and recommendations

Part B: Performance Assessment

PROPOSAL FOR A DISTRICTWIDE
COOPERATIVE EDUCATION PROGRAM
IN OCCUPATIONAL HOME ECONOMICS

(Use this example to help you answer exercises 1-36 for Goal 5.2)

December 1976

NOTE: The purpose of this proposal is to provide an example of one approach to developing curriculum. It is designed to illustrate the kind of information and organization needed for proposal development. It is a hypothetical situation developed with the aid of the following materials: Area Manpower Review, San Francisco-Oakland Standard Metropolitan Statistical Area, Annual Outlook & Planning Report, California Employment Development Department, 1973; San Francisco-Oakland Manpower, 1972-75, Employment Depart., State of California, January 1974; Occupational Outlook Handbook, 1974-75 ed., U. S. Dept. of Labor, Bureau of Labor Statistics Bulletin 1700; Manpower Report of the President, A Report on Manpower Requirements, Resources, Utilization, and Training, transmitted to Congress, March 1973; New Horizons in Cooperative Education, San Mateo Community College District, San Mateo, California.

CONTENTS

INTRODUCTION

There is every indication that for the next decade cooperative education will be at the center of innovative practices in secondary education as well as in higher education. Strong trends toward (a) relevant educational and training experiences for students, (b) direct participation in community activities while in school, (c) specialized training not possible for classroom containment, and (d) financial support for some of the higher cost programs in vocational education can be achieved through combining classroom studies with off-campus, paid work experience.

It is the purpose of this proposal to recommend that every possible action be taken to develop a cooperative education program to enhance and supplement the occupational home economics program in District 6. All students in the occupational home economics program should have ready access to such cooperative programs. This proposal has two major objectives: (1) to illustrate the need for and interest in a cooperative education program for occupational home economics at the secondary and postsecondary level; (2) to provide guidelines for developing a cooperative education program in occupational home economics at the secondary and postsecondary level.

In order to develop this proposal, a committee of five home economics teachers in District 6 has engaged in the following activities:

1. contacted and conducted surveys among local employers and organizations including representatives from:
   a. McDoohies Food Services Chain, Inc.;
   b. Sea Train Restaurant, Inc.;
   c. local association of restaurant owners and managers;
   d. Alpine Outdoor Equipment Co.;
   e. Darvey's Test, Awning, Inc.;
   f. Home Decorating, Inc., Colorie Condominiums and Townhouses;
   g. Industrial Designers Society;
   h. National Society of Interior Designers, Inc.

RATIONALE

The occupational home economics program in District 6 has had a successful beginning. The program was initiated two years ago, emphasizing three different occupations with a total of 50 students.

	1973	1975
1. Food Services Program: Waiter, Waitress, Caterer Lincoln High School	12 students	48 students
2. Power Sewing and Upholstery Washington High School	23 students	87 students
3. Interior Designing Jefferson Community College	15 students	40 students
Total	50	175

This program was initiated and sponsored by the Committee of Home Economics Teachers (COHET) in District 6. Because enrollment has increased substantially from 50 students to 175 students, the committee recommends improvement and expansion of the current program through the development and implementation of a cooperative education program. It is through such a program that the following objectives of the occupational home economics program can be achieved.

A PROPOSAL FOR A DISTRICTWIDE
COOPERATIVE EDUCATION PROGRAM

I. Sponsor and Schools

The Committee of Home Economics Teachers (COHET) for District 6 sponsors this program. Cooperating secondary and postsecondary schools include Lincoln High School, Washington High School, and Jefferson Community College.

II. Current Program - Review and Evaluation

The present occupational home economics program is offered in the three schools listed above with no corresponding cooperative education program. The two high schools offer a vocational education program which includes business and office occupations, distributive education, consumer home economics and occupational home economics, and trade and industrial education. The occupational home economics program is the only service area in the secondary vocational education program which does not have an established cooperative education program.

Jefferson Community College, the only college servicing District 6, offers transfer options to upper-division state colleges and universities, continuing education for adults, and occupational education including occupational home economics emphasizing "interior design."

Cooperative Education Enrollment School and Division

Lincoln High School		Washington High School	
Business and Office	100	Business and Office	70
Distributive	50	Distributive	60
Auto Mechanics	75	Machine Repair	75
Carpentry	30	Service Station Attendant	40

Jefferson Community College			
Aeronautics	25	Technical	55
Business	170	Telecommunications	10
Engineering	70	Health (technicians)	58

Occupational Education Enrollment in District 6

Lincoln High School Washington High School

Measurable Learning Objectives

The Committee of Home Economics Teachers has developed a cooperative education procedure based on measurable student learning objectives for the work experience.

Each student in conference with his on-the-job supervisor and his college coordinator develops learning experiences which are the objectives of his participation in the cooperative program. Performance levels to be attained, the time and manner of development, as well as overall procedures for educational growth within the field of employment are agreed on prior to or during the early part of each semester.

Management by objectives (MBO) is one of the more significant current trends in business and industry to improve the effectiveness of personnel and operations. The aim is to focus all of the energies of the institution on the predetermined performance objectives which are to be accomplished. Preliminary evidence gathered from cooperative programs in District 6 which are similar to this proposed program indicate that evaluation of student progress is enhanced greatly by the process of setting measurable learning/performance objectives. In nearly all cases in which the system has received preliminary testing, the results have favorably received by students, employers, and colleges.

Student learning objectives tend to fall into three categories: skill development, knowledge increase, and attitude/motivation improvement. In each case the student is the primary person responsible for laying out learning objectives, with the assistance of the college coordinator and the employer. The process is not complex. It is accomplished best through low-key informal conversations emphasizing positive learning opportunities readily available on the job. The intent is to involve the

employer in the educational growth process and to focus the student on potential improvements which can be gained from the work experience.

An example of student objectives is provided on the next page through the Cooperative Education Work Experience Agreement.

Student Evaluation

The Committee of Home Economics Teachers conducted a survey among cooperative education students in other programs in District 6 before developing this proposal. The results of this follow-up survey are given on the next page. The data gathered from this survey indicate that students perceive cooperative education as a valuable and relevant aspect of their education.

Research on Cooperative Education

As a result of research studies conducted during 1974-75 on District 6 cooperative education, there is new evidence with implications for future program development.

This evidence points up the effectiveness of work experience programs as a means of expanding student training opportunities at minimal cost and with maximum flexibility for adding or closing programs. To summarize the implications of recent research, these implications have been organized by categories.

Student Retention. Retention by students is improved by a factor of more than two to one. Further evidence resulting from analysis of District 6 data for 1974-75 continues to indicate that overall retention rates in regular courses in three schools are 65-75%, while retention rates in cooperative education are 75-95%. The median rate of class withdrawal is 32% for all students, as compared to 15% for co-op students. In other words, for every two students who leave traditional programs in the three schools before completion, only one cooperative education student

COOPERATIVE EDUCATION WORK EXPERIENCE AGREEMENT

James C. Haversmith
STUDENT

Pacific Telephone Company
(EMPLOYER'S Company Name) Engineer Assistant

Fall 1974
SEMESTER YEAR

Each semester that a student is enrolled in Cooperative Education, it is necessary to identify new learning objectives. ey should be specific, measurable, and within his/her ability to accomplish. The objectives must be formulated by the ident, reviewed and approved by both the employer and coordinator at the beginning of the semester.

At semester's end, the employer and student will discuss the progress made in attaining the objectives and independent- rate the progress (below). From this rating plus seminar discussions, individual conferences, term assignments and on-the- evaluation, the instructor/coordinator will determine whether or not the student is to receive credit for the work ex- rience.

Objectives	Rating
During the first three weeks I will work in the drafting department learning communications design and industrial drafting techniques.	A. 1
By Nov. 15 I will complete a ten-page report on the local engineering division of Pacific Telephone, including staffing relationships and work assignments.	B. 1
During November and December I will work part-time in the field with an installation team preparing plans for industrial installations under the supervision of Engineer G. Jones.	C. 1
By January 15 I will have completed an in-depth development project of communications planning and installation for a building under construction, probably a service station at the corner of Fifth and Division St.	D. 1
During Fall semester I will seek to improve my attitude toward communications engineering as evidenced by increased proficiency ratings, recorded comments of other employees, and comments of my three supervisors.	E. 1

Rated By: [signature]
Title: Engr Div Sup.
Date: 6-10-74

Excellent Employee

ting Scale: 1 – Accomplished Objective
2 – Made some progress towards objective
3 – Failed to make any significant progress

We agree with the validity of the learning objectives listed above. The employer and the college agree to provide tha cessary supervision and counseling to insure that the student/employee receives appropriate educational benefit from this rk experience.

It is understood that the employer will provide adequate protection for the student/employee through Workmen's mpensation and/or Liability insurance as required by law.

G. Jones
PLOYER'S REPRESENTATIVE

[signature]
STUDENT'S SIGNATURE

M. Jenner
COORDINATOR'S SIGNATURE

Engineer

EMPLOYER'S FILE COPY

leaves before completion. Evidence from three evening college programs provides further indication that retention by these adult students is improved even more than by day students or secondary students. Jefferson College, for example, reports that the class withdrawal rate for all evening college students is 35%, compared to only 5% for evening college cooperative education students.

Another report shows a retention percentage over the period of one semester for the entire student population of 87%--a dropout rate of 13%, as compared to 95% (5% dropout) for cooperative education students. This report was provided from data comparing fourth week and final enrollments.

Comparing data compiled over a longer span of time, it is indicated that a 33% to 40% withdrawal rate applies to overall day and evening courses as compared with 13% withdrawal rate in cooperative education--a retention improvement factor of 3 to 1.

Another comparison over a two-semester period indicates 91% retention for cooperative education enrollments, as compared to 70% for all regular courses over the same period of time. This dropout ratio of 9 to 30 is a greater than 3 to 1 improvement. It is evident, therefore, as indicated by evidence from 1974-75 as well as earlier studies, that retention (a significant problem for schools) can be improved substantially by the involvement of students in cooperative education.

District 6
Cooperative Education Follow Up
Winter 1974
N = 162 students

Male	- 46%	Veteran	- 34%
Female	- 54%	16-18 years old	- 37%
Day student	- 67%	18-21 years old	- 32%
Evening student	- 33%	22-25 years old	- 4%
		26-35 years old	- 18%
		36 years & older	- 10%

1.	Do you think that Cooperative Education has been helpful to you in your education growth?	Yes 80%	No 20%
2.	Has Cooperative Education provided you an opportunity to apply classroom theory to the job situations?	Yes 80%	No 20%
3.	Do you feel the Co-op program is career oriented enough?	Yes 67%	No 28%
4.	Do you feel Co-op Education has increased your job opportunities in the future?	Yes 54%	No 39%
5.	The coordinator was helpful to you in developing your learning objectives?	Yes 75%	No 22%
6.	The Co-op course requirements were made clear to you at the beginning of the semester?	Yes 89%	No 11%
7.	Has the use of objectives been helpful to you?	Yes 81%	No 18%
8.	Would you recommend this program to your friends?	Yes 90%	No 9%
9.	Did your coordinator visit your place of work at least twice during the semester?	Yes 58%	No 35%
10.	Do you think there should be more seminar meetings?	Yes 28%	No 68%
11.	Did you have any particular problems with your employer or coordinator?	Yes 13%	No 84%

Academic Success. Cooperative education students maintain or improve their academic achievement. Observing grade point distributions among secondary and day and evening college students, it is evident that cooperative education employment does not detract from academic standings. More often than not it brings about improvement of grades. This tendency probably occurs as the result of increased motivation and new learning opportunities found in the community.

Evidence is provided by the following statements from reports over the past two years in five different schools.

> "Cumulative Grade Point Averages for cooperative education program students (N - 863) is 2.57; total student population exclusive of cooperative education students is 2.35 for fall semester."

"13 (40%) of the 33 scholarship winners at Jefferson College for 1972-73 completed at least one semester of cooperative education."

"Data on Grade Point Averages (GPA) of 950 students in fall and spring semesters indicates that cooperative education employment does not detract from academic standing."

	Co-op	All Students
Semester GPA (Median)	2.28	2.00
Semester GPA (Mean)	2.59	2.66
Semester GPA (Mean, 12-15 units)	2.71	2.66

"Comparing letter grades in ten divisions, day and evening college, between students enrolled in cooperative work experience education (N = 1,250) and students not enrolled in co-op, it is apparent that co-op students maintain grade averages as high or higher than other students. Grades do not go down as the result of working in cooperative education assignments."

"Percentage of general student population (not including co-op) on Dean's list is 37%;
Percentage of co-op students on Dean's list for high academic performance is 47%."

Summarizing, it is apparent that learning through work experience in a coordinated program of cooperative education does not cause grades to drop. Contrary to often-expressed concern about distraction from learning while working during college, there is substantial evidence to show that the opposite is true if the educational program is arranged in the manner of cooperative education.

Cooperative Education for Adults. From the standpoint of under-employed or unemployed adults in the community, cooperative education can be the means of training, re-training, and upgrading for those who need more education. Changing employment patterns of the future no doubt will require the kind of training flexibility which is associated with the cooperative education design.

The combination of work and study for adult continuing education is one which might be designated alternate-emphasis. Adults, fully employed, attend college classes one or more evenings per week. Credit for

cooperative work experience is assigned through college coordination, including employer supervision and related college classes. The pattern of credit is maintained at a ratio of three academic credits per one work experience credit.

An Associate Degree Program of 60 or more semester hours might include as much as 16 semester hours of credit for advancing work experience based upon measurable learning objectives.

Career Education Opportunities. It is estimated that the range of career education options available to students is doubled through cooperative education. This occurs without substantially changing the college classroom component of the educational program.

Students are able to move into unique job preparation opportunities through work experience in new areas not previously available to unskilled workers. Unique opportunities are provided as, for example, special cooperative education opportunities for hearing-impaired students, Learning Center support for co-op educationally disadvantaged students; revision of many law enforcement and fire science training programs to take advantage of community college cooperative education; new public service career opportunities in mental health and child care; and student work experience in places such as Los Angeles, Sacramento, and Washington, D. C.

Financial Assistance. In an adjacent community which contains three community colleges, total income earned by students in one year as the result of community college cooperative education work experience was in excess of $8,400,000.

2,258 students in cooperative education earned an average of $2.96 per hour from their employers while working an average of 30 hours a week for 42 weeks. The salaries ranged from a low of $1.80 per hour--from $100 to $175 per week--to a high of more than $1,000 per month.

In unusual circumstances, as when a small percentage of students began as volunteer interns in public service careers during the first period of employment, it is apparent that later many were placed on the employer's payroll when competence was demonstrated. Agencies have been able to establish budgets for aides and trainees as the result of high quality performance on the job by cooperative education students. Reports from the last two years inciate many variations in salary.

> "Volunteers--certainly the lowest end of the pay scale--are gaining valuable experience that often leads to paying jobs."
>
> "$2.00 per hour is our minimum. Highest pay is for alternate semester jobs in building elevator maintenance and installation for $272 per week--$1,088 per month while in training with a major nationwide employer."
>
> "Weighted average hourly earnings for the better co-op employment stations leading to Associate Degree responsibility levels is $3.43 per hour or $811 per month on full salary."
>
> "Based upon a mean of $2.50 per hour students at this college earned $1,207,125 this year, while at the same time they gained new learning experience which is of greater value than the financial income."

Significantly, when students identify their greatest interest in cooperative education, it is most often reported in surveys as earning power. This is true in spite of educational planning which proposes that increased knowledge and advancement toward educational goals should be the most important objectives.

Success of the program in terms of developing earning power has proven to be far beyond any original expectations of the program. The cooperative education program in each of the three colleges provides more students financial assistance than any other resource.

Employer Participation. Employer participation in District 6 cooperative education programs has been developed using at least five approaches:

a. one-by-one meetings with supervisory personnel;

b. large group meetings with many employers;

c. large companies and small businesses approached through associations;

d. bandwagon effect in job development as companies become aware of program potential;

e. job development as a regular function of cooperative coordination activities.

Placement. Nearly 100% of students are able to hold their co-op jobs after placement. Although many students must learn to cope with problems on the job there is less than 1% failure rate. Coordinators assist in job changes and in obtaining better jobs for qualified students. Reassignment to other jobs is sometimes used if unusual problems are encountered. Coordinators and on-the-job supervisors have proven to be highly effective in helping co-op students to succeed.

The trend in each school is to combine student placement office activities with cooperative placement. This is a positive organizational change which has occurred with varying degrees of success. In the long run the benefits are many. First, the student identifies one office as being concerned with off-campus jobs. Employers too are able to call one location at the school to discuss the employment of student workers. Integration of these two activities facilitates the process of helping students find either part-time or full-time jobs as well as getting them enrolled for cooperative education. Cooperative education job development can be accomplished either by full-time developers or by assignment as part of the task of regular co-op coordinators. It requires about three man-hours to develop one co-op job. There is evidence to indicate that a dual approach should be taken for this function. Much of job development belongs with the regular coordination assignment, particularly for work-station development within organizations already employing co-op students.

> "One thing I have noted is that we always have more jobs than we can fill and at the same time more students than we can place. As in all personnel work, it is difficult to make the job and the student fit together. Expectations of students and employers can usually be met, but there are times when neither are

completely happy. As the program grows there is a constant improvement in the quality of placements and experience opportunities."

Training, upgrading, and retraining These are important features of the cooperative education program for those w on lower level jobs who wish to improve their positions as well as those who are beginning work for the first time.

Paid employment and college coordination are the two universal factors in cooperative education.

Placement on the first job and advancement to higher levels of competence are two patterns of co-op employment. The parallel plan enrolling about 49% of the 4,797 students, along with the extended day new career plan enrolling about 45%, are the two most used methods of co-op interaction with employers. Alternate semester arrangements for 6% are increasingly in demand and the trend is growing.

III. Manpower Needs, Supply, and Demand

The Committee of Home Economics Teachers recognized that the development of a cooperative program must be concerned with the manpower needs of the labor market served. Indeed it can be held that planning should begin with analysis of future employment opportunities, for two important reasons:

1. Students who are aware of projected employment opportunities will be better prepared to choose realistic career options; and
2. educational programs designed to meet anticipated employment market needs are more likely to achieve optimum effectiveness.

The following data comes from a research and planning report developed by the State Research Center, "Career Opportunities: 1974-85." The report provides an analysis of the labor market for the San Francisco Bay Region which is directly adjacent to District 6.

The three target programs of this proposed expansion of cooperative education all show in this analysis a continuing need for trained personnel. Manpower projections prepared nationally are relied upon heavily in this report, since they are considered by most experts to be the best available job market information. Data from many sources, including national census results, estimates of business and industry, and analysis of trends by experts--all of the best sources pointing to future employment opportunities--are analyzed by labor experts to determine future manpower requirements.

Localized projections are accomplished by utilizing techniques of adaptation. This type of analysis, based upon percentages of the labor force in cross-sectional distributions, is refined in accord with local conditions. In the Bay Region, for example, a reduction in job estimates for heavy industry and an increase for transportation are necessitated by the specific features of this international crossroads area.

Index of Employment Opportunity

In the process of planning it is essential to communicate resulting information in terms which are easily understood. Employment opportunity estimates of the type presented here can perhaps be most readily perceived when expressed as "Average Annual Openings Per Year" for selected careers.

As an index of opportunity, the Average Annual Openings data focus directly on what the student needs to know about the labor market. Educational programs as well can respond according to local need.

It should be noted that manpower projections take into account not only increasing and decreasing activities of specific job markets but also employee replacement. Replacement occurs as the result of old age retirement and obsolescent skills. Therefore, in planning cooperative education programs, consideration should be given to the fact that people

need retraining and upgrading as well as entrance-level skill development.

High-Priority, Expanding Opportunity Career Areas Combined With Other Expanding Opportunity Career Areas Division Totals Included*

I. San Mateo County
II. Peninsula Tri-County Area
San Francisco
San Mateo
Santa Clara
III. San Francisco Bay Region

	Average Annual New Openings Per Year from 1974 to 1984		
	I SM	II Tri-County	III SFBR
1. Professional and Technical Occupations*	1,943	8,179	15,540
Accountant	83	347	660
Advertising/Market Research/Personnel/ Public Relations	60	254	482
.. ENGINEERING AND SCIENCE TECHNICIAN	261	1,098	2,088
.. MEDICAL LABORATORY TECHNICIAN	32	135	256
Registered Nurse	163	684	1,300
Radiological Technologist	18	77	146
Life Scientist	38	160	304
Physical Scientist: Chemist, Physicist	44	183	348
.. EMERGENCY MEDICAL TECHNICIAN	35	147	280
.. RESEARCH AND DEVELOPMENT ASSISTANT Business, Industry, Government	30	126	240
Drafting Technician	38	161	306
Writing Careers: News and Technical	8	32	62

* Note: High priority career education needs are indicated by the use of . . . CAPITAL LETTERS
Other expanding opportunity career areas as well as Division Totals are presented without special notation.

		Average Annual New Openings Per Year from 1974 to 1984		
		I SM	II Tri-County	III SFBR
	Commercial Artist	5	20	38
	Technical Illustrator	5	20	38
	Home/Consumer Economist/Interior Designer	23	82	180
	Lawyer	36	152	290
	Computer Programmer	57	242	460
	Systems Analyst	68	284	540
2.	..MANAGEMENT AND SUPERVISION (Expanded Offerings) Business Office, Supermarket, Financial, Government Agency, Retail Sales, Wholesale Sales, Transportation, Hotel, Restaurant, Department Management, Owner-Management	950	4,000	7,600
3.	Clerical/Secretarial/Business Careers*	2,280	9,600	18,240
	..STENOGRAPHER/SECRETARY: MULTIPLE SPECIALTIES	593	2,494	4,740
	..ACCOUNT CLERK/COMPUTER-BOOKEEPING ASSISTANT	195	821	1,560
	..RECEPTIONIST/CASHIER/TYPIST	230	968	1,840
	Electronic Computer Operating Personnel (Note Computer Programmer above)	51	215	408
	Office Machine Operator	63	263	500
4.	Sales Occupations*	658	2,768	5,260
	..MANUFACTURER'S SALESWORKER	80	337	640
	..WHOLESALE SALESWORKER	63	265	504
	..RETAIL DEPARTMENT SUPERVISOR	170	711	1,350
	..SALES SUPERVISOR	85	356	675

	Average Annual New Openings Per Year from 1974 to 1984		
	I SM	II Tri-County	III SFBR
5. Craftsmen*	990	4,168	7,920
Building Trades: Carpenters, Electricians, Plumbers, Bricklayers, Cement Masons, Floor Installers, Roofers, Sheet Metal Workers, Steelworker, koofers and others	325	1,368	2,600
Machinist Occupations	47	198	378
Aircraft Mechanics: Airframe and Powerplant	95	125	194
Telephone Industry Craftsmen (Also see Engineering & Science Technician)	17	71	134
..WELDING TECHNICIANS	58	242	460
..AUTOMATED INDUSTRIAL MACHINE TECHNICIAN	20	88	165
..AIR CONDITIONING, HEATING, REFRIGERATION TECH.	13	52	100
..MAJOR APPLIANCE SERVICE TECHNICIAN	22	91	172
..BUSINESS MACHINES SERVICE TECHNICIAN	22	90	170
..INSTRUMENT CALIBRATION/REPAIR TECHNICIAN	19	79	151
..FOREMAN/CONTRACTOR/CONSTRUCTION SUPERVISOR Construction Project Bidding; Contractor License Preparation	141	591	1,124
..MANUFACTURING INSPECTOR: QUALITY CONTROL TECH.	48	202	384
6. Operatives*	1,065	4,484	8,520
Truckdrivers, local	93	389	740
Truckdrivers, Over the Road	54	227	432
Machine Tool Operators	26	111	210
Environmental: Wastewater Treatment Plant Operators	6	26	50
Power Sewing Machine Operators	11	31	78

	Average Annual New Openings Per Year from 1974 to 1984		
	I SM	II Tri-County	III SFBR
7. Service Occupations*	1,880	7,915	15,040
Cooks and Chefs	120	505	960
Cosmetologists	95	400	760
Licensed Practical Nurses	120	505	960
Hospital Attendants	250	1,053	2,000
Police Officers	45	187	356
WAITERS and WAITRESSES	168	705	1,340
..BUILDING MAINTENANCE CUSTODIAN/ TECHNICIAN	125	518	985
..HOUSEHOLD CLEANING MAINTENANCE SERVICE TECH.	60	252	480

The San Francisco Bay Region including six counties with over 4,200,000 people is the sixth largest metropolitan population center in the United States, exceeded only by New York, Los Angeles, Chicago, Philadelphia, and Detroit. One in every five persons in Califorina lives in the San Francisco Bay Region. One of every 50 persons in the United States lives in the San Francisco Bay Region.

IV. Funding

The stimulus funding procedures presently used by District 6 Cooperative Education Program would be extended to the occupational home economics program. Effective low-cost procedures have been developed to maintain a balance between vocational cooperative education and general or liberal arts cooperative education.

Comprehensiveness is improved as the result of applying limited funding for special groups "piggybacked" on larger program activities already

established. It has been demonstrated that relatively small investments in cooperative education directed towards students with educationally and economically deprived backgrounds in transfer programs--when combined with vocational programs--substantially increases effectiveness of both programs.

Cost-Effectiveness

The cost-effectiveness of cooperative education is being demonstrated as highly productive for the funds invested. Man-hours of co-op coordination including job development, counseling, evaluation and on-the-job consultation are 5.87 man-hours per student per semester.

Cost of cooperative education (other than classroom instruction), including 3 semester hours credit per student with associated teacher-coordinator activities, job development, counseling, on-the-job consultation, and evaluation is $58.07 per student per semester.

These calculations are based upon salaries of $17,420 for instructor- and teacher-coordinators working 8 hours per day for 220 days per year, providing full coordination services for 150 students per semester.

The Occupational Home Economics program will require the hiring of three additional faculty members, but it will reduce the need to buy additional equipment and provide more laboratory space.

V. Community Involvement

Regardless of world-wide problems which have occurred during 1973-74 with regard to the energy crisis and a weak employment market, employers continue to provide strong support for cooperative education.

Employer positive response to the program is indicated by the fact that about 50% of "good prospect" employers, screened from response letters to development literature, actually become employers of cooperative education students. A total of 1,200 business, industry, and community agencies

have employed the students enrolled in the district cooperative education program during the 1973-74 school year.

Employers are becoming aware of the fact that community colleges are the largest local labor pool of young, talented employees with high potential for advancement to technical and management positions. The co-op plan is the answer to many of their recruiting and screening problems.

Students, as well as employers, benefit from the effectiveness of cooperative education to open wide new areas of employment traditionally not available to beginning workers. Recruitment, as well as options for continuing in school and on the job, are mutually beneficial.

> "A large company reporting through personnel representatives stated that the concept of cooperative work experience education has been introduced into all of their employee's bargaining sessions and has been received with enthusiasm. Many employers see school work experience credit as an incentive for full-time employees to continue upgrading and re-training activities to meet today's employment needs."

Business and industry stand ready to aid the schools in District 6. The resources of the business community are available for upgrading the vocational education program in home economics through providing equipment, work stations, supervisory personnel, and placement.

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